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# THE AMERICAN FARMER.

"O FORTUNATOS NIMIUM SUA SI BONA NORINT  
"AGRICOLAS." . . . . Virg.

PUBLISHED BY SAM'L. SANDS & SON, BALTIMORE, MD.

VOL. VII.—No. 12.]

DECEMBER, 1878.

[NEW SERIES.

[From the American Farmer, March Edition, 1854.]

## PRIZE ESSAY,

To which was awarded the Premium offered by the MARYLAND STATE AGRICULTURAL SOCIETY—  
Messrs. Key, of St. Mary's, and Dick and Gunton, of Montgomery Co., Md., Judges—

### ON THE RENOVATION OF WORN-OUT LANDS:

By COM. THOS. AP. C. JONES, of Fairfax Co., Va.

In the catalogue of premiums offered for competition by the Maryland State Agricultural Society, and which are to be awarded at the approaching Baltimore Cattle Show, may be found one "*For the best Essay on the Renovation of Worn-out Lands.*"

If I am not mistaken, this is not the first effort put forth by the praiseworthy liberality of the Maryland Agricultural Society, to obtain what the farming interest of the old thirteen States, in particular, so much need; a Hand-book or Manual, founded on practical knowledge and long experience (such a work as the really practical husbandman only can supply.) Why has not this prize, of such high value, in what interests *everybody*, been contended for? It cannot be because we have no successful renovators of exhausted soil among us; nor is it that among our working farmers there are none capable of communicating what they have practically acquired to others.

'Tis true, the best farmers are not always the best scholars, nor do they care to appear in the public prints at any time, but especially when their competitors may be the most highly gifted scholars of the land. Now, at the risk of being adjudged presumptuous, having devoted about thirty-four years to the precise object, "*the Renovation of Worn-out Land.*" I put in this my humble offering for the society's premium, not, however, so much in expectation of winning the prize, as to avail myself of the occasion to record answers to the questions so often put to me, as to the means employed in the reclamation of my own thoroughly worn-out land, and as to my opinion of the various manures now in use, and the best mode of applying them.

To my task then, and what I may say will partake rather more of the character of a simple narration or journal of my own doings, than of that

of a treatise derived from the doings of others. I will arrange my subject under several appropriate heads, showing,

*First*, what my land was in 1819, when I took it in hand. *Secondly*, what it is now in 1853. *Thirdly*, by what means it has been resuscitated and brought to its more than pristine fertility. *Fourth*, a system of rotation for the guidance of young farmers of the most limited means; and *lastly*, some observations on lime and liming—on manures and manuring; concluding with a formula for compounding various manures and the formation of cheap composts.

#### What the Essayist's Land was Originally.

In the first place, then: January, 1819, found me in possession of land in Fairfax county, Virginia, so poor, as, even in that then proverbially poor county, (of which it was often said, the more Fairfax land a man had, the poorer he was,) to be known and designated by the commissioners who divided the old family estate, as *Poor Hill next the Dover*. One-half of my 140 acres was in virgin wood consisting of the varieties common to this section of Virginia. The quality of the land originally was middling, and all the cleared portion was thoroughly exhausted by the tobacco and corn system of our progenitors, who, in their laudable desire to enrich posterity, left their children fields poor indeed. This isolated patch drawn from a worn-out tobacco plantation of 3,000 acres, was without improvements of any description; there had never been even a negro cabin on any part of it, it was not fenced in, nor was there a wheelbarrow load of manure about the premises, nor was there at that day, within my reach, any of the powerful concentrated manures now so freely used.

No agriculturist, young or old, ever embarked on a more forlorn hope than did I, when I under-

took to renovate *worn-out soil in Fairfax*. 'Tis true, I had a small income of about \$700 per annum, from another source, but what was that compared to my wants? I had houses of every description to build, labor to hire, feed and clothe; farm to stock out and out, and my own personal and somewhat extravagant wants, real and imaginary, to provide for. In short, I had everything to buy and nothing to sell; and what was worst of all, I was discouraged by old farmers, on every side, some of whom affirmed that Fairfax land could not be improved. "Plaster would not act at all," and "as to clover, it was a greater impoverisher even than corn and oats," the alternating crops of those times. Nothing daunted at all this, for my case was somewhat desperate, a wanderer on the face of the earth without a place that I could call home, and as already said with a small income of six or seven hundred dollars per annum, I had to choose between spending that in boarding-houses and taverns, or in an endeavor to improve the bit of land I had inherited. I resolved on the latter, and at it I went. The first decisive step taken was to sell 40 acres of my wood land to enable me to erect a house to live in. That left about 70 acres of thoroughly exhausted, worn-out, naked and gullied cleared land, to commence on. The agricultural condition of the neighborhood in which I settled will be better understood, when I state, that in 1820 the whole 3,000 acres of which my 140 acres were a part did not yield three tons of clean hay per annum.

If, at the commencement of my agricultural experiments, I was discouraged by the example and predictions of those among whom my lot was cast, I assure the reader, the results of the first few years were by no means cheering; but *having put my hand to the plow*, my faith was too strong to allow me to look back in despair, although I did not always reap where I sowed, and frequently gathered not where I had scattered with a liberal hand. Such was my beginning in 1819. The third year thereafter, I cut a little clover for hay, and had one acre of reclaimed swamp land well set in timothy.

#### What it now Yields.

This year I erected a permanent shelter for cattle with a *loft capable of holding 35 or 40 tons of Hay*. While this building was being erected, I was the laughing-stock of the neighborhood, as well as of passers-by on the turnpike. The best farmer of the vicinity, at that day, after a careful survey of my premises, *cove house*, and *hay mow*, declared, that the whole county of Fairfax would never make hay enough to fill them! Was not this encouraging to a young farmer? But what is the result? For twenty years past, that mow has not been able to contain one-half of an average crop. Fields which did not even yield poverty grass when I took them in hand, now produce *Kentucky blue*, *i. e. English Lawn Grass*, spontaneously, and those which did not return three bushels for one, when seeded with rye, oats, buckwheat, &c., &c., now yield from 15 to 27, and as high as 32 bushels of *wheat* per acre, from 30 to as high as 72 bushels of oats per acre, from 8 to 14 and as high as 17 barrels of corn per acre, and an average of 1½ tons of cured hay, and as high as 3½ tons per

acre, at a single cutting, and all other crops usually cultivated on market-farms, in like proportions, besides having over six hundred fruit trees in full bearing of the most choice seed and stone varieties.

Having thus shown what my land was when I took it in hand in 1819, and what it now is in 1853, and lest any may be incredulous, I will here insert two extracts from *Ruffin's Farmers' Register* for the years 1838 and 1839, in proof of the practicability of reclaiming the worn-out lands of Virginia and Maryland, and of raising them to the highest state of productiveness.

"Memorandum of the culture and products of an acre of land in the county of Fairfax, by Thos. Ap. C. Jones, for seven consecutive years, taken from the 1st and 2d pages of Vol. 6, *Ruffin's Farmers' Register*."

In 1831—Produced 600 bushels of turnips at 25 cents per bushel.....	\$150.00
In 1832—Oats 72½ bushels, sold at 45 cents per bushel.....	32.72
In 1832—Stubble turned in and sowed with wheat and clover seed in September.	
In 1833—Wheat (lodged and did not fill well) only 19 bushels sold at \$1.25 per bushel.....	23.75
In 1833—In October, mowed the stubble and got one and a half tons of cow-food worth \$12.00.....	12.00
In 1834—Clover, June cutting, 3 tons, September, 1½ tons, at \$12.00, fallowed after second mowing, and sowed with wheat, harrowing in fifty bushels of quick lime at the same time.	36.00
In 1835—Another bad wheat year (blossoms washed off by hard rains) only 22 bushels at \$1.25.....	27.50
Mowed the stubble in September, one and a half tons of mixed hay worth..	12.00
In 1836—Clover and herds grass, 3½ tons \$15 per ton.....	52.50
2d crop plowed under preparatory for corn.	
In 1837—Planted latter part of April, with <i>Baden's Twin Corn</i> , 4 feet 6 inches each way; put a good handful of ashes, lime and plaster of Paris combined in each hill; product over ten barrels, say at \$3.50 per barrel.....	35.00
	\$394.27"

The above land received from two to three bushels of gypsum annually put on at various periods, but *never failing to follow the scythe with a good dressing of plaster*.

Ground plaster costs from \$7 to \$9 per ton in Georgetown. Fresh lime, at kilns in Georgetown, in 1834, cost 15 cents per bushel, and now 12½ by the quantity.

From these data, let the skeptic make any deductions he may think proper for expense of cultivation, at the highest wages for man and beast, and add interest on all cost and charges, and still there must remain a clear profit but little short of \$50 per annum, from rather less than one acre of ground, which, previous to manuring in 1831, was utterly worthless, but is now considered rich. It has on it 30 flourishing

young apple trees just getting into bearing, and promises a good crop of wheat seeded the last of October.

"Product of ten acres of land on the Sharon farm in Fairfax county, Va., (owned by Thomas Ap. C. Jones,) improved by liming and manuring—for the year 1838.

Taken from Ruffin's Farmers' Register, volume 7, pages 153, 154 and 155:

Five acres of wheat produced 117 bushels at \$1.00.....	\$187.20
Straw of the same.....	28.25
3 acres produced <i>eleven tons</i> 16 cwt. of cured clover hay, worth on the farm 50 cts. per cwt.....	130.00
Clover seed from the same ground, 2½ bushels, worth now \$15 per bushel..	37.50
Rye and the straw from one-fourth of an acre.....	12.00
Three-fourths of an acre in sugar beets, Ruta-baga, carrots and turnips, and not more than one-fifth of an average crop in consequence of drought, but according to present prices worth....	75.00
Fruit and cider sold from peach and apple trees growing on the above land..	251.00
One acre of turnips, gross amount as per statement No. 1 (below).....	255.20
Apples and other fruits and cider consumed at home, and what remains on hand at this time.....	86.00
Five pigs in a pen and fed on grass and offal fruit from the above ground and kitchen slop, killed at ten months old, weighed 734 lbs., at 8 cts., is \$58.72, deduct two barrels of corn for last feeding, \$8.00.....	50.72

\$1,113.37"

One thousand one hundred and thirteen dollars and thirty-seven cents, from which I leave the reader to make his own deductions for the year's expense of cultivation and marketing.

This much I affirm, that no acre of the above land, except the one in turnips last year, has ever cost \$15.00 to improve it, and that every acre has paid me from \$25 to \$50 annually since the lime and manure were applied.

These results show what I had done up to 1839,\* and what others may likewise do, and in most cases, and in all cases of old settled farmers, in less time and at less expense than I have incurred.

#### Means to Produce Fertility.

To give a full and circumstantial detail of all the means and appliances employed to produce the results stated would occupy far more time and space than can be appropriated to an essay designed for the *working* farmer. If I may now claim to be a practical farmer, and a successful renovator of worn-out lands, how I have accomplished this important end I will endeavor to reveal in the rules I shall recommend for the use of all *young farmers* who, from whatever motive or cause, may feel disposed to devote their time and energies to the cultivation of the soil.

\*Up to this time I had depended almost entirely upon the resources of the farm for manuring. With the exception of lime and plaster, my use of foreign or purchased manures had been confined to experiments upon the smallest scale.

I will suppose the young farmer already in possession of the land, and that he is supplied with at least three work horses or mules, one yoke of oxen, one good two-horse plow of the bar-shear kind, and a *one-horse bar-shear plow*, one *sub-soil plow*, one *clod* and one *seed harrow*, one two-horse roller, and labor equal at least to two and a half men, besides a woman to cook, milk and wash. I will suppose, too, that he has a comely and *notable* wife, both willing and competent to share with her *lord* and *protector* in all the cares as well as pleasures of life. Also that he has a proper complement of all farming implements, tools, &c., necessary to carry on a farm, among which there must be a two-horse wagon, a horse-cart and an *ox-cart*. This outfit is computed for a farm of from 120 to 150 acres, according to circumstances. If the young farmer has more land than means to stock it well and cultivate it thoroughly, then my advice is by all means to sell off as much of his surplus land as will put him in possession of funds sufficient to thoroughly cultivate and speedily improve the residue. I have somewhere met with an old proverb, which I earnestly commend to all farmers whether young or old, viz: that *two acres of land on top of each other are better than three side by side*. For example, in 1832 I got from one acre of well-manured land 72½ bushels of oats, having sowed three bushels. The same year I rented an adjoining field of 23 acres which had been in corn the previous year. On that field I sowed 30 bushels of oats, and after giving the landlord his *third*, and taking out the seed, I had 120 bushels left for my profit, *rather less*, for upon each of the 23 acres there was the same labor bestowed as upon the *one*—the manuring and eight dollars worth of lime, about the value of two acres of land, at that time, made the difference.

As my purpose is to lay down rules for the *young farmer of minimum means*, which the affluent and more experienced agriculturist may easily extend or modify to meet his own enlarged ability and circumstances, I shall take for illustration an even hundred acres, thirty of which we will suppose to be in wood, leaving seventy acres for the plow. Of this 70 acres I will appropriate 10 acres to buildings, gardens and orchards, hence I have 60 left for farming purposes proper. I will divide these into six fields of 10 acres each, and number them 1, 2, 3, 4, 5 and 6; I will suppose, too, that the young farmer is in possession and prepared to break ground at the opening of spring; of course he has employed all the working weather of the winter months of the year, i. e., January, February and March, in getting rails and repairing fences, &c., &c., until the ground was sufficiently dry for plowing for corn, or, if any portion of his land was in summer crops the preceding year, for oats. When the corn ground is to be broken for the first time, which I will suppose to be in nothing better than *poverty grass*, I would hitch the best one of my three horses to the one-horse bar-shear plow, and *turn the furrow 3 or 4 inches only*, following at the same time and in the same track with the substratum, alias subsoil plow, drawn by the other two horses, as deep as they can pull it, which if it be Davis' (formerly of

Georgetown, D. C.) primitive substratum plow with my improved point, will be from 8 to 10 inches. This operation at once provides a tilth of 13 inches on an average, still retaining near the surface, where, if there is any left in the soil, it should be, the little vegetable mould as food for plants, while at the same time *a receptacle is furnished, sufficient, in most cases, to absorb and hold all the rain that falls in any one place, and thus more effectually than by any other means within reach of the farmer of limited means arrest washing, to which cause is to be attributed the exhausted state of the once fertile but now worn out-lands of Maryland and Virginia.* The cause of exhaustion once removed, the work of renovation becomes progressive; slow it may be if unaided by art and science, but time alone, in the end, would bring back the land to its primeval state, if surface-washing were effectually arrested.

Nor is the safeguard against washing the only benefit derived from sub-soiling exhausted lands, especially if the sub-stratum be a compact, tenacious clay, like my own, for as clay soils are more retentive of moisture and parts with it much slower than gravelly or sandy loams, it follows, of course, that the larger the quantity of rain absorbed by the earth loosened to a greater depth, the more there is kept in store, and slowly given out, to nourish the growing crops. On land thus treated, I have never known the corn crop to fall below an average one, and when the land has been limed, and when manures have been judiciously applied, I have cut as heavy grass from hill tops as from bottom lands.

Supposing the ground to have been broken as directed, and left in the rough state till the time of planting approaches, which is better indicated by nature than by the almanac, or than any man's notion of a particular day, for if you plant too soon, that is before the ground is warm enough to sprout the seed quickly, you will assuredly have much re-planting to do, which is sometimes attended with more labor and expense than the first planting. If you plant too late, the culture of your corn will interfere with your clover and your grain harvests, and your corn may be injured by early frosts, so that, as in most other acts of man, a middle course is best for planting. In this and like matters, we may profitably follow nature's laws. I have found the budding and blossoming of forest trees a good criterion for planting corn and sometimes some seed; for instance, where the leaf of the tulip or wild poplar tree is the size of half a dollar, Indian corn may be safely planted, and when the chestnut blossoms are fading, buckwheat may be sown with a fair prospect of a crop.

As short a time as practicable before planting corn, the corn ground may be rolled and thoroughly harrowed, and then marked with a double mould-board plow, or, what is better, the old Dutch plow, long used in Virginia and some parts of Maryland, for that purpose, at such distances as may be determined on, according to soil, situation and climate. I plant as close as I can to allow room for after culture. The poorer the land the closer I plant, regulating the number of stalks to the acre, by the number left in the hill, rather than by the distance between the hills if checkered, and the rows of stepped and

drilled corn. Twelve hours, at least, before you intend to commence planting your corn, dissolve half pound of copperas in some boiling water, into which pour about a gill of tar, add as much more water as will make thirty gallons; then put your seed corn in, stir it well, and allow it to soak 12 hours at least. When ready for planting, take the corn out, and let it drain awhile, then roll it in plaster of Paris, and put four or five grains in a hill. It will not be long coming up, nor much troubled by crows and the like, and will seldom require replanting.

The next process, if your land was not sub-soiled when broken up, is to run a naked, sharp coulter as near the corn, on each side, as a horse can walk and as deep as he can draw it. This done, as soon as your first planting is large enough to thin, run your two-horse heavy harrow over it, following at the same time with hand hoes to thin and draw a little earth about the remaining plants; (without any other cultivation than this, excepting a handful of plaster, wood ashes and lime, applied on the hill after covering, I have made 11 barrels of corn to the acre, from a field of several acres.) As a general rule with me, the culture of Indian corn after it is planted, consists in surface culture, taking care never to disturb the sod, if any was turned under, and above all, never stir even the surface of corn ground when wet. A good general rule alike indispensable to preserve the fertility of the land and to insure good crops, is *not to work corn unless the dust will follow the plow*, nor after the roots have extended so far as to be disturbed by the implement. Strict adherence to these rules for the cultivation of all summer crops, will not only insure fair crops in *any season*, but will redeem that most valuable of all grain, Indian corn, from the unjust charges so pertinaciously insisted on by all bad farmers, of robbing mother earth of her native fertility, and rendering her powerless to produce.

#### Rotations.

The young farmer will probably find it necessary to secure all the corn-fodder he can the first two or three years. If so, that is the best done by cutting the tops and pulling the blades as soon as the outside shucks of the ear turn brown, but corn intended for bread should not be gathered nor cut off before November, after some black frosts, nor even then, unless the cobs are dry. Thus ends the culture for the first year's corn crop, which be it remembered was on field No. 1. As early in the spring of the second year as practicable, the corn field of the previous year is to be thoroughly plowed, harrowed and sowed down in oats, when immediately thereafter field No. 2 is to be taken in hand and treated in all respects as was field No. 1. As soon as the oat crop is removed from No. 1, turn down the stubble this time with the two-horse plow, followed in the same furrow by a coulter drawn by one horse, if you have no more, roll and harrow pretty freely as directed in preparing the corn ground, and in the last days of September or first ten days of October sow down with wheat. If to be sown broad-cast, soak the seed in *strong brine*, from 12 to 24 hours, and roll in lime. If to be drilled, which is preferable, the seed must be dry. Clover seed may be sown on



the wheat after harrowing, but before any rain falls, or any time in spring after the snow is gone, and until April.

We are now in the third year with field No. 1; as soon as the wheat is removed, turn your swine in as gleaners, but no other stock until there has been a biting frost, when moderate grazing with cattle will be rather beneficial than otherwise. As the most trying ordeal through which young clover has to pass, on thin lands particularly, is the sudden transition from shade to a parching July sun, by the cutting of grain on which it is sown, it is of the first importance towards guarding against the destruction in a few hours, of a good set of young clover; it should receive a generous dressing of plaster of Paris the same evening or following morning. One bushel per acre, without any admixture, but finely ground, is the least quantity that ought to be applied at that critical season.

Early in the spring of the fourth year, (that is, as soon as the frost is out of the ground, and the clover and meadow grass leaves begin to expand,) dress with a compost of one bushel of plaster of Paris, two bushels of wood ashes, one peck of lime and one of common salt per acre—double the quantity of ashes would be better; (if ashes are scarce any rich earth or fine manure that can be conveniently sown by hand will answer in equal proportions with ashes;) but bear it in mind that after the ground is once covered with snow, no hoof or tooth ought to be admitted on young clover; especially should sheep and horses be kept off, for the buds that are nipped by them in winter and early spring can never recover from it, and many will be *entirely destroyed*.

Clover fields treated as I have directed will be in full bloom by the middle of June. When one-third of the blossoms have turned brown is the proper time to put in the *scythe*, and this must not be neglected on any account, for although there may not be a remunerating crop for *hay* to take off the land, it should be mowed, and *mowed all over, too*, as there is no better extirpator of noxious weeds, brambles and the like, than the scythe in May, June, July and August. Moreover, if the clover is thin and light, mowing before the root is exhausted by the ripening of the first crop will cause the roots to throw out many additional seed stalks for the second growth, which, although it may not be so tall as the first, will certainly be much thicker and cover the ground better. [Here remember, whenever you mow over dry land, follow the scythe with a *dressing of plaster, if nothing else*.] The second growth of clover is the seed crop; but if the young farmer cannot save the seed without cutting the clover, he had better let it fall and lie on the ground until vegetation is checked by autumnal frosts. Then, but not till then, it may be pastured without detriment except when the ground is very wet and soft, and as in the previous year, not after mid-winter. This brings us to the fifth year with a fair prospect of a tolerable crop of clover, if my directions for the last year were strictly adhered to. The young farmer may now exercise some discretion; he may mow for hay in June, or he may pasture off, taking care not to turn in stock

any sooner than he would have *finished mowing*. Henceforth, until April of the sixth year, he has a pasture for cattle, horses and sheep, and the more of them he puts on it, and the closer he grazes this year, the better for the land. It is the practice of many good farmers to break up their land for corn the preceding autumn. My experience teaches me differently. I have always found that *blue grass* turned over in autumn was not killed by winter frost, and gave a *deal* of cross plowing and other work in spring to get the ground in good order for planting, and a great deal more work in after-culture than when the sod is turned as short a time as possible before planting; besides this, you lose your best pasture, for sheep in particular, from early frost in autumn till March—say four months in every year on an average. But whether you break up in the spring or autumn, No. 1 must go in corn the sixth year, and is to be treated thenceforth pretty much as was the first rotation. Fields No. 2, 3, 4, 5 and 6 follow No. 1 in annual succession, and as near as may be under similar treatment.

The reader will probably be surprised that I have said so little, as yet, about manures. The omission was *intentional*, first, because I did not suppose the young farmer had much of that on hand, and secondly, because I am endeavoring to lay down a plan for the renovation of worn-out lands in the hands of farmers and farmers' sons, who for want of means or by reason of remoteness from regular supplies must depend on the resources afforded by their own premises, and lastly, because I have thought that a separate section devoted to manures would be better than to break the thread of my narrative by recommending this or that manure, or this or that time or mode of applying it. Besides, I am quite sure that any young farmer in the first five or six years of his operations, however successful, has hardly been able to rake and scrape together more manure than was necessary for the production of potatoes and other culinary vegetables, on the ten acres set aside in the beginning for buildings, gardens and orchards, which, I presume, were planted out in the second or third year, at farthest, and will, of course, require annual manuring as well as annual cultivation in summer crops, such as potatoes, turnips, sugar beets, Ruta бага and the like, for seven years, at least, for apples, and all the while for peach trees.

The thirty acres of wood land, set apart for fuel and fencing, ought to be well enclosed for a permanent hog pasture and for cattle in early spring, and at all seasons when the ground is too soft to turn cattle on cultivated fields. I have not introduced in my rotation summer fallow, as generally understood, for wheat—

First, because it is not likely that the young farmer had a clean field for that object, nor suitable manure to enrich one. All the worn-out lands of Maryland and Virginia, with which I am acquainted, are more or less infested with blue grass and garlic, to a degree forbidding the production of good merchantable wheat from summer-fallowed ground. Wheat upon oat or barley stubble which was in corn the preceding year, is not only the best remedy against garlic,

but it is the very best process to insure a full crop of clean wheat on any land.

It must be apparent to every practical farmer that no stiff land, land best adapted to the production of wheat, can be put in proper condition to receive the seed, when deeply plowed in mid-summer, by once harrowing, even when the roller precedes or follows the harrow; especially if the land has been pastured. Such land, at that season, can never be easily plowed unless so moist as to bake very hard under an August sun, and often to a degree that no harrow can properly pulverize, by once or twice passing over it. I know it has been often said, and will be again said, that a rough fallow is the sulcy for a wheat crop; the clods are said to serve as protection to the weak plants during winter, and by gradually mouldering away as spring advances, constantly supply fresh covering to roots exposed by the high winds of March, blowing away the fine earth which covered them. That such is the operation and effect to some extent cannot be denied, but it is far better to *prevent the evil* than to cure it by such means.

Let your oat or barley stubble be well prepared, the finer the better, and put your wheat in, in good season, with Pennock's or any of the many seed-drills now largely in use, and my word for it you will have nothing to fear from winter-killing nor from the roots in spring-time. How often do we hear the farmer complain that his wheat is too thin, the winter has killed it, the fly destroyed it, won't make half a crop, &c., &c. While these lamentations are going on, one might traverse the fields after harvest, by stepping from clod to clod which at time of seeding were a foot or more in diameter and through which no germ of the seed did, or could possibly pass, while the seed from the hand of the sower, falling on such rough ground, rolls off and inter-laps with the seed from neighboring clouds, and collects so thickly as to stifle and smother all. So that from one cause or another, a portion of the ground is entirely too thickly and another too thinly seeded, while in the aggregate by reason of missing spaces, nearly one-tenth of the superficies bears no fruitful plants. Is it then at all surprising that some of the finest wheat lands of the Shenandoah valley and of the opposite counties of Maryland, yield an average of only about twenty bushels per acre, whilst occasionally, with better farming, but no better land, forty, fifty or more bushels are produced. If land which yields twenty or twenty-five bushels under the common mal-practice of rough summer fallow, were treated differently, and more after the manner I have suggested, fifty or sixty bushels per acre would be more common than twenty or thirty now are.

#### On Manures.

What I have to record under this head, I will premise by endeavoring to correct two very prevalent errors in regard to *lime as a manure*.

First, then, lime, practically speaking, is not of itself a manure, yet at the same time no soil, other than alluvial, annually flooded, can be certainly fruitful and *permanently productive*, that does not contain a due portion of lime in some form or other, to be absorbed by the rootlets of plants for the perfection of both straw and

grain. I have known some curious blunders and detriment to the progress of liming, by the use of *lime as a manure in comparison* with strong putrescent manures; for instance, a shovelful of each, was, by a novice, put on the hills of alternate rows of corn. The result of such ill-judged experiments need not be told.

Another common error, and one little less fatal to the general use of lime as an auxiliary renovator, is that it must be applied in quantities so large as to interdict its use by most farmers who derive support entirely from an exhausted soil. I was a great sufferer under this popular error. When I commenced farming, there were but few, if any, *native* periodicals devoted exclusively to agriculture, and adapted to the wants of our own country. Consequently, we had to look abroad for agricultural light, which when received was illy adapted to our resources, our climate, or our worn-out lands.

The English works with which we were most familiar, told us of liming by the 1, 2, 3, 5 and even 860 bushels per acre; and in Pennsylvania, where liming was first brought into much use in the United States, 40, 60, and 120 bushels per acre were generally administered.

I commenced with about 40 bushels per acre, and I have occasionally applied 60, and as much as 80 bushels, on one occasion. The result was highly satisfactory in each case, but the expense was entirely beyond the means of most farmers. Long experience and close observation have satisfied me that lime in far smaller quantities than is generally supposed, may be applied in various ways and with great advantage. I had good results and lasting benefits from the application of as little as 15, and even down to *five* bushels of fresh burned lime per acre, mixed with three or four times its bulk of road scrapings and even of virgin soil dug out of banks on road sides, spread on grass lands in Autumn. Lime thus neutralized by clay or earth forms a most valuable ingredient for making compost; indeed a single bushel of lime well mixed with ashes, dry earth and the like, to prepare it for sowing by hand, applied to one acre of wheat and harrowed in with it, on land destitute of lime, will have a very salutary effect in hardening the straw and producing well-filled heads.

#### How to Apply Manures.

The mode of applying manures being a subject of such diversity of opinion among the best farmers, I feel some distrust in recording my own experience. Some plow it in as deep as they can, some shovel or harrow it in, and some top-dress by spreading it on the surface and particularly on grass lands, and there let it lie—some do these things in the spring-time, some in winter and some at seed-time, and a *few* directly after harvest or mowing.

The result of my own experience, after a fair trial of *all* the modes practiced or recommended, is that manures should be kept near the surface within the reach of air, light, heat and moisture. There are some exceptions to this general rule: for instance, when rough manure is used in the drill (the best mode for raising Irish potatoes in the tidewater counties of Maryland and Virginia,) it must be buried deep; so, too, when applied to the corn crop, it must be spread thick on the surface and deeply turned under.



This last practice I seldom pursue, nowadays, and for two reasons: first, the difficulty and cost of hauling such a bulky article any considerable distance in spring time before the ground has become settled after the alternate freezing and thawing of winter, and the great damage done to roads and fields traversed at such season.

Moreover, I do contend, the opinions of many to the contrary notwithstanding, that the rough manure of the farm-yard, of a winter's accumulation, removed in March for the corn field, if suffered to remain in the yard, occasionally strewing plaster of Paris and sulphate of iron (coppers) over it until more thoroughly decomposed by the genial heat of spring and early summer, although it might lose 50 per cent. in bulk, one load of the thus concentrated manure would be equal, as a fertilizer, to four of the rough mass in which it was found in March.

This is a subject of peculiar interest to the owners of large farms—say of 500 or more acres. Let any one count the cost of manuring ten acres of land for corn, with manure to be hauled 1,200 yards from the farm-yard, in the months of March and April, and he will find that he had better sell the extra teams he keeps for such hauling, and lay out their value in lime and some of the highly concentrated manures than to continue the old practice.

I shall be asked how I expend or apply my home-made manures. I will tell you in as few words as I can. In the first place, I have, as the reader may remember, a standing farm-yard or cow-pen in which my cattle are penned every night, winter and summer. The pen is surrounded by stalls for the milch cows and work oxen, while the young and dry cattle have shelters under which they retire at will. The centre of the yard is concave, so as to retain all liquids that fall into it, while there is dry ground round and about, for the cattle to stand or lie down. This yard is abundantly littered with straw, corn-stalks, &c., from early autumn until late in the spring. Back of my horse-stables there are close receptacles, where the horse-litter is deposited, morning and evening. This last manure is applied exclusively to top-dressing mowing grounds in early spring and autumn, but the best time of all is as soon after mowing as possible, although it be under the burning sun of July or even August. This idea will, doubtless, startle many practical farmers and professors of the art and science of farming, as much as it did me when first recommended by an eminently successful English farmer still living in this State. At first, I thought my friend was quizzing me, but he became so earnest, and he entreated me so hard to try it, if with one load only, that I consented, and applied it on a piece of fresh-mowed timothy meadow, neither high nor low ground, and at the rate of only five cart-loads per acre. The result was a heavy second growth, equal to half the first crop, and when in August, the part so dressed might have been mowed, the stubble of the undressed portion was not hid by the after growth. The crop of the succeeding year was 20 per cent. better than on land of the same quality top-dressed in the usual way and time.

Travelling in the State of New Hampshire a year or so afterwards, on a farm where was growing the best timothy I have ever seen in New England, I saw wagons in August hauling cured grass from the meadow to the barn, and returning with manure from the barn to the meadow! My farm-yard or rough manure is applied chiefly to the potato crop, planting at convenient seasons through the months of March, April and May. The fine manure or scrapings is worked into composts\* and applied to corn in the hills, to garden and field crops, such as Ruta Baga, beets, carrots, &c., &c., and to oat and barley ground, sowed broadcast and harrowed in, to buckwheat and turnips in July, and to rye and wheat at the time of sowing.

Having said thus much about manures of the farm-yard, the practical farmer must choose his own time and method of using them according to the circumstances in which he is placed.

Of all the concentrated natural and chemical manures now in general use by farmers and gardeners, Peruvian guano is decidedly the favorite. It may not always be so. It ought not now to be the case. That upon extremely poor lands, incapable of vegetable production without the use of powerful stimulants, 200 lbs. of guano per acre will produce an astonishing crop of wheat, &c., cannot be denied: and if clover seed be sown with the fall crop, or on it, in early spring, a fair crop of clover may follow next year, if the season be favorable, and if that clover be well plastered and plowed down in June, and again plowed and seeded with rye or wheat in August or September, there will be an improved base to work on, by a regular rotation such as I have already laid down, which must be pursued, or the benefits of the guano will be lost, and the land will be in a worse condition than ever. But guano should not be applied the second time to the same land, unless in combination with other fine manures; nor should it ever be applied in its crude state to land that is in good heart—i. e., land that will bring thirty bushels of Indian corn, or fifteen bushels of wheat per acre, without it, not but that guano on some such land might increase the product of both wheat and corn enough to pay for itself, but if it should, the soil will be robbed of its fertility, and will be left in a far worse condition than when the guano was first applied; at least such have been my own results in its use, and such is the universal character of guano in Peru, as I there learned upon personal inquiry, from the mouths of all persons (with whom I conversed) engaged in gardening and agricultural pursuits around the city of Lima, the capital of Peru, from whence we obtain the best guano. I have frequently been in Peru, first in 1825, again in 1842-3, and more recently in 1848, and on each and every occasion I took the greatest pains to obtain all possible information as to the value of guano as a manure, and the mode of applying it to field and garden culture, as well as to its effects upon the land, and with one accord and without a solitary exception I was told that land stimulated by the use of guano soon became utterly worthless, unless the stimulus was kept up by repeated applications. This was the

\*See appendix for recipe, No. 6.

reason assigned for so little use made of guano, where the cost of the article is merely nominal, not exceeding more than half what we willingly pay for leached ashes in the District of Columbia. Of all the concentrated manures for sale in our seaboard cities, crushed bone or bone-dust is undoubtedly the best; its effect on the soil is both prompt and permanent; at least, a single application made by me 15 years ago is still quite visible, although the ground has been heavily cropped ever since. I found that one bushel of crushed bone was equivalent to one double horse-cart load of good farm-yard manure. Forty such loads is the least that will enrich an acre of worn-out land sufficiently for a good crop of corn: hence, at the present price of bone-dust, that manure is beyond the means of most farmers for the renovation of poor lands.

Poudrette, of the Lodi (New Jersey) Works, is an excellent manure for forcing vegetables to early maturity: hence its great value to market gardeners in the vicinity of cities, but, like guano, it imparts little or no abiding fertility to the soil.

Plaster of Paris, slaked lime, wood ashes and common salt, combined in due proportions, may, after all, at the same or less cost, be more profitable to the farmer than any manure yet known.

Considering lime as the only sure foundation to any good system of farming which may be adopted for the renovation of lands exhausted by injudicious culture, I will devote a few lines to that particular subject, by stating what I would do if I had my work to go over again, and which, of course, I recommend to all other beginners in their efforts to improve worn-out lands.

First, then, when your land has been well broken up for corn in the *spring of the year*, spread on it from 30 to 60 bushels of dry slaked lime. If you are near enough to kilns to get the *fine* lime fresh drawn, and can get it on the land before it slakes, thirty bushels of that sort will be still better than the larger quantity slaked, but be very careful not to let your lime get wet before it is spread and *harrowed* in—if you are so remote from lime-kilns as to be able to haul only one load a day, it will be better to buy the fresh burned and best lump lime, because in that state it is much lighter, and, when water-slaked, will increase from three to four-fold. Such lime ought to be put under cover and slaked immediately with strong brine. Lime of the quality described, and treated accordingly, acts very *promptly*, mechanically as well as chemically; mechanically, in reducing stiff, rigid clay to a loose friable texture, and chemically, by neutralizing acids unfriendly to vegetable production, and by combining with loose and light soils, they are rendered more adhesive and retentive of moisture; in other words, lime judiciously applied to stiff land renders it light, while it gives to lands too light a firmer or more compact texture. This dogma, paradoxical as it may appear to many, is fully established by every brick chimney or stone dwelling in the land. All who build such houses know that lime and sand (the latter largely predominating in all light soils,) with water, are materials used by masons for the

formation of mortar, which in a short time becomes as hard, if not harder than the bricks. It is also well known that if stiff clay or rich mould were to be used with lime for mortar instead of sand, that, when dry, it would moulder away and become impalpable dust. Now, with these plain truths before us, it is only necessary to apply smaller portions of lime to our lands according to their texture, and we can have stiff or light land as we may choose or will it.

Most writers on lime applied to agriculture, and many practical *liming* farmers, too, recommend doses of 50 or 100 per cent. on the previous dressing, until you get up to 120 bus. per acre at the end of the 8th year. I have not done so, nor do I consider it absolutely necessary or always expedient at such short intervals. Better extend the time according to my cycle of six shifts, applying the lime to your corn land in any convenient quantity, not less, however, than you commenced with—say 30, 40, up to 60 bushels per acre. Finally and emphatically be it remembered, *that if your land is naturally deficient in lime, that deficiency must in some way or other be supplied* or you never can reap the full benefit of manuring your crops, particularly wheat will be uncertain in quality as well as in quantity, without lime, however rich your land may be, and in time of drought your crops of all descriptions may fail entirely, whereas, on judiciously limed land, similar crops under like circumstances will escape almost unscathed.

THOS. AP. C. JONES.

Fairfax County, Virginia, October, 1853.

[We omit the republication of a section in the essay, and in the appendix below of combinations Nos. 3 and 4, both of which refer to "Chappell's Fertilizer," a popular preparation at the time the essay was written, but no longer made. *Eds. A. F.*]

#### Appendix.

Combination of concentrated manures to be applied by hand:

No. 1.	
Soap boilers' ashes. 2 bus.	} To be sown per acre on all meadows or other grass lands in late autumn or early spring.
Plaster of Paris. . . . . 1 "	
Common salt. . . . . 1 "	

The proportion of ashes may be increased to any available quantity, as high as 10 or 12 bushels, which is as much as can be conveniently sowed by hand. When 10 bushels of ashes are used, this is a fine dressing to be harrowed in with any fall or spring crop; or as a top-dressing for winter grain, and by reducing the salt to  $\frac{1}{2}$  of a bushel, and adding one bushel of lime, if your land had been previously limed, and allow the mass *after being thoroughly incorporated* to remain one or more weeks in the heap, you will have a fine compost for corn-hills; a small handful to be dropped with corn, potatoes, and the like.

#### No. 2.

Super or bi-phosphate of lime, 100 lbs.	
Plaster of Paris. . . . . 60 "	
Common salt. . . . . 15 "	

Thoroughly incorporated with two, three, four or five times their bulk of any light rich earth, or scrapings of the lanes or farm-yard after the rough manure has been removed, forms another excellent dressing to be harrowed in with any kind of grain. A small handful dropped in corn and potato hills, and for early spring dressing of meadows, broadcast, will be found in many cases equal to 200 pounds of Peruvian guano.

## No. 5.

Wood ashes.....100 bushels.  
Plaster of Paris.... 10 "  
Fresh slaked lime... 10 "  
Common salt..... 10 "

From five to twenty-five bushels per acre. But never to be plowed in, and, except on grass land, not less than ten bushels per acre ought to be used.

## No. 6.

Rough compost is readily made on a large scale by strewing the valleys in your wood land, where is generally a large deposit of leaves and other vegetable matter, with lime at any season of the year, and at all convenient times after one good rain has fallen. Scrape into winrows, and when you are ready for forming compost, heap alternate layers of this vegetable mould with the rough gatherings about the farm-yard, and with a moderate sprinkling of each layer or so with common salt or strong brine, and a bushel of gypsum to each acre to which the compost is to be applied. This makes a good and durable dressing to be harrowed in with small grain, or to be sown on wheat during the winter, and immediately after clover seed has been sown.

[Concluded from page 479 November No.]

### The Germination of Seeds and the Flowering of Plants—II.

#### Duration of Vitality of Seed.

In the matured seed, when kept from excess of moisture, the germ lies dormant. The duration of the vitality of seed is very various. The seed of the willow will not sprout after it once becomes dry, but must be sown when fresh. They lose their germinative power after two weeks from ripening. With regard to the duration of the vitality of the seed of our agricultural plants, there is great diversity of opinion amongst those who have experimented upon the subject.

The leguminous seeds, such as clover, peas, &c., appear to remain capable of germination during very long periods. The seed of clover when deposited deep in the soil will remain there for fifteen or twenty years, and then sprout when brought up near the surface. Beans have been known to germinate when 100 years old. The seed of wheat lose their germinating power generally in from three to seven years. The vitality of seed depends very much upon circumstances. If seed when first gathered be thoroughly dried and then sealed up in air-tight vessels, or otherwise kept from contact with the air, there is no reason why their vitality should not be preserved for ages. Oxygen, moisture and insects are the agencies through which the

vitality of seed is usually destroyed. In agricultural practice it is a general rule that the newer the seed the better. It has been proven by experiments that the older the seed the more numerous the failures to germinate, and the weaker the plant it produces. By experiments made with the view of testing this question, it was found that out of 100 grains of wheat sown when four years old, none came up; out of 100 grains sown when three years old, 51 came up; out of the same when two years old, 73 came up, and out of 100 sown when one year old 74 came up.

Under some circumstances, however, it has been found best to use old seed, which in some cases yield more flowers and greater number of leaves. In the case of melons, the experience of gardeners goes to show that seed that have been kept seven years, though less apt to come up, yield plants that give greater return of fruit; whilst planting from new seed tends excessively to vines.

Unripe seed, when the grain is soft and milky, are capable of germination, especially if they are allowed to gradually dry on the stalk or straw. Such immature seed, however, has less vigorous germinating power than those allowed to mature perfectly. When sown many of them fail to come up; and those that do, yield weak plants, and in a poor soil give a poorer harvest than well ripened seed.

It is claimed by some that the sowing of unripe seed tends to produce new varieties. As a general rule of practice it is doubtless best always to select the ripest, plumpest, best seed for the sowing of our cereal crops. Like begets like, poor seed bring poor crops, and, *vice-versa*, good seed bring good crops, other conditions being favorable. This is a most important matter and greater attention in the selection of seed is very much needed, and our young farmers particularly are earnestly cautioned against using tail-ends for the seeding of their wheat crop.

#### The Flowering of Plants.

The flowering of plants is another most wonderful process in the life of the plant. In the matter of the fertilization and fructification of plants there is something approaching the marvellous. The fact of the existence of male and female plants, and of their possessing organs of reproduction corresponding to those of animals, is almost incredible.

The flower is the medium of reproduction for the plant, and contains all the organs necessary for that purpose.

The flower is a short branch bearing a collection of organs which, though having but little resemblance to foliage, may be considered as leaves, more or less wonderful in form, color and office.

The flower contains four distinct sets of organs, viz: the Calyx, the Corolla, the Stamens, and the Pistils. The Calyx or cup is the sheath or outer portion or base of the flower. It assumes a variety of forms and colors in the different plants, but is ordinarily red, white or green.

The Corolla or crown is one of several series of leaves which are situated within the Calyx. It is found in a great variety of forms and va-

rieties, have marked peculiarities of form, and great delicacy of structure, and thus imparts beauty, fragrance and loveliness to the flower. When the Corolla is divided into separate leaves they are called petals.

The Stamens are generally slender, thread-like organs, terminated by an oblong sac called the anther, which, when the flower attains its full growth, discharges a fine yellow powder, the so-called pollen, the fertilizing element of the flower. The form of the anther, as well as the grain of pollen, vary with nearly every kind of plant.

The Pistils occupy the center of the perfect flower. They are exceedingly various in form but always have at their base the seed vessels or ovaries.

Whilst the complete flower consists of the four sets of organs just mentioned, only the Stamens and Pistils are essential to the production of seed. The flower of the buckwheat has no Corolla, but only a white pinkish Calyx. The grasses have flowers in which the Calyx and Corolla are represented by scale-like leaves, which, as the plant matures, become chaff.

In various plants the stamens and pistils are borne in separate flowers, of which the corn plant is an example. In the case of corn we have the tassel and the silk,—the former being the stamens, and furnishing the pollen to fertilize the silks, which are the pistils. On examining the young shoot, there will be found a long thread-like organ, commonly called the silk, running out from every grain. This silk is long enough to reach out to and beyond the end of the shoot. The fertilization takes place by the falling of the pollen from the tassel upon the naked ends of the silk or pistils. It is thence carried down through the silk to the little sacs or ovules in which the act of fecundation takes place.

The great function of the flower is the production of seed. For this purpose the pollen must fall upon or be carried by the wind, insect, or other agencies, to the ends of the pistils. Thus situated, each pollen grain sends out a slender tube which penetrates the interior of the pistils until it enters the seed-sac, and comes in contact with the ovule or rudimentary seed. When this contact takes place, the ovule is fertilized and begins to grow. Thenceforth the corolla and stamens usually wither, whilst the base, the pistils and ovules rapidly increase in size, until the seed are ripe, when the seed vessels fall to the ground, or else open and relieve the ovule of its contents.

Artificial fecundation is sometimes practiced to increase the yield of certain crops. In the case of wheat this is done by two men traversing the field carrying a rope between them so as to tightly brush over the heads. This device has been found useful in some cases, though in many trials no good effect followed it. We must therefore conclude agitation by the wind and the good offices of insects commonly render artificial fecundation useless.

#### Hybridation.

As the union of the sexes of different kind of animals sometimes result in the production of a hybrid, so amongst plants the ovules of one

kind may be fertilized by the pollen of another, and the seed thus developed in its growth produce a *hybrid* plant. In both the animal and vegetable kingdoms, the limits within which hybridation is possible seems to be very narrow. It is only between closely allied species that hybridation can take place. Wheat, barley and oats show no tendency to mix, the pollen of one of these plants being incapable of fertilizing the ovules of the other.

In flower or fruit culture, hybridation is practiced as a means of producing new varieties. Hybridation is effected by removing from the flower the stamens before they shed their pollen, and then dusting the summit of the pistils with the pollen of another kind. The mixing of different kinds of the same plant is *not* hybridation. Hybridation is produced by the mixing of two distinct *species*, but they must be closely allied (as the ass and the horse.)

There are a great many varieties of wheat, corn and oats, but they all belong to the same species. They will mix but not hybridize. Individuals of the same species differ. In fact no two are quite alike. Circumstances of temperature, food, climate, and habits of life, increase and multiply these differences, and varieties originate when such differences assume fixity and prominence. It is by the careful study and practice of these principles that stock-raising has attained to such wonderful success.

In the cultivation of most of our agricultural plants, varieties are propagated by the seed. Other plants and trees do not always do this. Fruit trees more particularly can not be relied upon to produce their kinds, but are generally propagated by cuttings, layers, and grafts. The reason why the seed of the apple, pear, or peach, can not be relied upon to reproduce the particular variety, is due to the accidental contact of pollen from other varieties, and not to any material inability to reproduce their kind. That such inability, however, does often exist, is well established.

WM. HOLMAN.

Cumberland Co., Va.

#### Home-Made Fertilizers.

Dr. J. R. Nichols, the editor of the *Journal of Chemistry*, recently had a *field meeting*, on his farm, of about one hundred working farmers, and delivered to them in the barn an address on chemical fertilizers and their manufacture, from which we take the following extract, which we copy from the report of the *Massachusetts Ploughman*:

Dr. N. alluded to the meeting as "a *farmers' barn meeting*, or for the time being, we will call it Our Agricultural College," and promised to graduate all his hearers in about an hour without diplomas. He added that "probably never before in the history of agriculture in our country, has a meeting like this of farmers been held in such a place for such an object."

"As the *sight* is the readiest avenue to the mind, he said that at the close of the lecture, Mr. Davis,



the efficient superintendent of this farm, will call you into the barn-yard contiguous, and then with apparatus and implements, such as are used on the farm, will proceed to prepare, not simply an ounce or a pound but *five hundred pounds* of superphosphate of lime, the most important of all forms of plant food. He will also show you other combinations of fertilizers, a knowledge of which it is important to possess. You have seen the room or laboratory below, simple, plain, and without machinery, in which the fertilizers for the farm are prepared. In that room, Mr. Davis, during the past winter, made about *twelve tons* of superphosphate of high grade, analyzing sixteen per cent. of soluble phosphoric acid, and also several tons of other compounds used in the various crops on the farm. He will use three hundred and eighty pounds of bone charcoal, and a carboy of oil of vitriol, one hundred and sixty-five pounds, in making the superphosphate, and you must observe all the proceedings, observe how he handles the carboy so as to avoid spilling or slopping, how he mixes the bone with the acid and water, how he manipulates the mass with his wooden hoe. The box in which he will make the mixture is of wood, four feet square and one foot deep, and it is lined with thick sheet lead,—the lead in one piece, soldered at the corners strongly with *lead* solder. A tin solder will not do, as the acid will act upon it. This box is the result of much experiment, and is the best and cheapest vessel that can be devised. Its capacity is just right for making one-fourth of a ton of superphosphate at a time, and it requires a whole carboy of vitriol, so that no fractional parts of acid are left to cause trouble. He will use in the manufacture:

1 carboy oil of vitriol.....	165 pounds
Fine bone charcoal.....	380 pounds
Water.....	10 gallons

The water is first placed in the trough, and the acid is added to it, then the bone is gradually added, causing a great boiling with evolution of heat and steam as you will see. You observed in the laboratory that there were roof windows that could be opened for letting out the steam; these are necessary. It takes about an hour for the reaction to become complete, and then it will soon dry and be free from moisture. It needs no grinding—it is ready for the field as soon as cool. Specimens of each lot as made, here, are taken to the analytical laboratory and analyzed to ascertain how perfect has been the reaction. You have visited the laboratory, up stairs at the end of the building. This is necessary for the chemist, as it is there that all his results are worked out, but it is not needed by you. You will need a cheap room with good ventilation for the manufacture, and the simple implements you see here are all that are necessary.

In order that you may understand the nature of the materials and compounds we prepare, I will now proceed to state the chemical constitution of bones, and what changes bone structures undergo when subjected to chemical treatment. The bony framework of men and animals is essentially alike, and the molecules of which they are composed come from the foods consumed. The bones which hold up the muscles

and integuments of our animals, come from hay, grain and green forage, &c. It is necessary for cows to procure a much larger amount of bone material than they need for the repair of osseous waste in their bodies, for the composition of milk calls for a large amount of the phosphates. When you learn that in about every 30 gallons of milk there is one pound of tribasic phosphate of lime, or bone material, you will have some idea of the importance of this substance in the food of cows. The bones of the infant, fed on milk, come from this principle, and hence we learn: the medium through which human or animal structures are built up. Permit me to remark in passing, that it must be obvious to you that an animal in milk like a cow, cannot yield excrement of high value. Most of the rich material obtained from the pasture, or from any form of food, goes to the milk, and hence little is left of value to return to the soil. We often hear farmers say they keep cows and sell milk so as to maintain the fertility of the farm. This is absurd, on the principle that you cannot eat your pudding and have it too.

A cow in milk requires about 80 lbs. of bone material a year, and consequently a herd of 25 cows will carry off from our pastures and the barn a ton of bone materials each year. It is apparent that this process of exhaustion cannot continue for a very long period without rendering our fields sterile. We must return to them the bone material they have lost,—we must, in other words, feed our hungry plants upon the soluble phosphate of lime, and thus give to them renewed vigor; and they in turn will yield the same back to our animals, and from them our own bodies will be nourished. Plants cannot assimilate bone in its ordinary condition; it must be rendered soluble in water before it can enter plant structure, and how this is accomplished it is important to understand. Phosphoric acid, the element in bone which plants require and which, therefore, becomes what we call a *fertilizer*, is not the only kind needed to render our fields productive. It is one of the three great essentials of plant food, for there are but three that we need trouble ourselves particularly about. The others are nitrogen and *potash*. It is proper to remark here that the great bulk of all vegetable structures comes from the air, and is, therefore, furnished abundantly and gratuitously; what concerns us directly is the matter of furnishing proper supplies of phosphoric acid, nitrogen and potash to our fields and crops, and it is our business to learn how to obtain, prepare and apply these substances.

Now, first, let us consider phosphoric acid, what it is, and how we are to fit it for plant nutrition. I shall use in the experiments this afternoon what is known as bone charcoal, for the purpose of developing or setting free phosphoric acid, and here it is in the vessel before you. It is, as you see, a black granular substance, resembling coarse black sand. This substance is simply burnt bones, bones charred, or changed into animal charcoal by heat. The animal portion, or the gluten, is carbonized and the bone structure destroyed. It is a substance largely employed by sugar refiners to decolorize syrups, and after it has served their purpose it is

sold to makers of fertilizers to be changed into *super-phosphate*. What is the meaning of this word, so often brought to the attention of farmers? *Super* means *above, over, or higher*. When prefixed to the word *phosphate*, or phosphate of lime, it means that lime is *overcharged* with phosphoric acid. In this vessel I have a fine white powder in mass, as you see; it is pure bone powder. Now, this is composed of lime and phosphoric acid; it is a phosphate, but not a *super-phosphate* of lime, because it holds *three* parts of lime and only *one* of acid. If it was like the powder in this vessel I have in my hand, it would hold only *one* part or equivalent of lime, with the same of acid, and then it would be *super-phosphate*.

Lime is a substance the nature of which you very well understand, but of phosphoric acid you know less. I can show you here upon the table this most interesting acid in two forms; in the phial I have what is known as *glacial* phosphoric acid. It resembles *ice*, and hence its name—a very beautiful substance, hard, transparent, and intensely sour. In this phial we have it in the form of a clear colorless liquor, about as dense as syrup. This is prepared from the jet black *super-phosphate* you see upon the table. Phosphoric acid is an indispensable constituent of plants; not a plant exists which has it not. How it happened to become necessary in plants, this wonderful acid, we do not know. In bones it exists locked up most firmly. Every molecule or little particle is in the embrace of *three* molecules or atoms of lime, and they hold it so tenaciously, that we cannot make it available for plants unless we proceed to violently tear the molecules asunder and drive the lime into new combinations. This we accomplish by the aid of strong sulphuric acid, oil of vitriol.

Now, let us understand this matter, so that when Mr. Davis mixes that fiery liquid, that carbony of vitriol, with those two barrels of bone charcoal, we shall know just what happens. Vitriol, you say, will burn our clothing, our flesh, and so it will, and yet we are going to pour it on to that bone, and in one hour not an ounce of the vitriol will exist as such. The black liquid will seethe, and boil, and hot steam will rise, and in one hour you can put your hand into the mass, and handle it as you can sugar. What becomes of the vitriol? I will tell you. The bone is composed, as we have said, of three equivalents of lime and one of phosphoric acid. Now, the vitriol has a strong liking for lime, or it seizes hold of it whenever it can reach it, and becomes locked up in its embrace, and *sulphate of lime* is formed. This is the gypsum, or plaster with which you are well acquainted. The whole of that ten gallons of acid is to become locked up with the lime in those barrels of bone, and it will disappear in its new combination completely, and now you ask, what becomes of the *phosphoric acid*? Well, that is a pertinent question. As soon as the vitriol seizes the lime, the phosphoric acid is set free as it were, but a kind of vacuum exists; the condition of the acid is an unnatural one, and hence it associates itself with an amount of water sufficient to replace the lost lime. The vitriol will seize but two of the three atoms of lime, and so the phosphoric

acid is left in the form of what chemists designate a *mono-calcic phosphate*: that is, it holds one equivalent of lime and two of water, and now it has become *soluble*. We have prepared a vat full of *super-phosphate*, and that is composed of phosphoric acid soluble in water, lime, and gypsum; by far the largest proportion of the bulk is gypsum.

It has been my endeavor to avoid the use of technical terms, the true language of chemistry, in order to render every statement intelligible to you. I will now venture to put upon the blackboard some diagrams, or tables, which I hope will make very plain the reactions or changes which bones undergo in manufacturing *superphosphate*. There are three forms of phosphate of lime: that is, lime is held by phosphoric acid in three proportions, and in naming them I must use the chemical terms. Your attention is called to the illustration upon the blackboard:

Tri-calcic Phosphate.	Bi-calcic Phosphate.	Mono-calcic Phosphate.
Phosphoric acid Lime, Lime, Lime.	Phosphoric acid Lime, Lime, Water.	Phosphoric acid Lime, Water. Water.

In this diagram we have a clear illustration of what I have endeavored to state to you. Plain bone without the animal part, is *tri-calcic phosphate*, phosphoric acid, lime, lime, lime; *bi-calcic phosphate* is phosphoric acid, lime, lime, water; *mono-basic phosphate* is phosphoric acid, lime, water, water. Mr. Davis will act upon the *three lime* phosphate, and change it over into the *one lime* phosphate with his vitriol. He begins with an insoluble substance, that is, insoluble in water, and leaves off with one that is soluble. All the phosphoric acid held by *three* equivalents of lime is now held only by *one*. If he took fine ground raw bone, he would reach the same result so far as chemical action is concerned, but he would have a pasty mass, very difficult to dry. If he took the Charleston powdered phosphatic rocks, he would have a dry and manageable powder after the reaction is over. Therefore, you cannot well act upon raw bones either fine or in small bits satisfactorily, but you can upon bone char, or the rocks of the Charleston marl beds.

Now, you ask, if this *superphosphate* will remain soluble as it is for a long time? I answer, probably not all of it. The *mono-basic phosphate* has a tendency to *go back, or revert*, as the change is sometimes termed, and this means that it will to some extent, that is, the phosphoric acid, take up another equivalent of lime in the compound and thus become *bi-basic phosphate*. I regard this as a not unfavorable change, for the reason that it is more slowly soluble in the soil, it is not so quickly available, and therefore is more enduring in its action upon crops. It is not certain but that we shall find it better to convert all of our phosphates into the *bi-basic* form, rather than into the *mono-basic*, as that form of acid may be too strong to be assimilated by plants. We do not yet know precisely in what condition the acid is taken up; we certainly know it must be soluble in water, however."



## Improving Land.

Messrs. Editors American Farmer:

I send you a treatise on exhaustion of soils in reply to Mr. Bethune's writing in your monthly journal. I know my writing in English is rather poor, as I left America now twenty-one years ago, and have had very little opportunity to speak your language.

Reading a discussion about improving poor land and sheep-holding, written by Mr. Bethune, I cannot help giving another picture of exhausting soils and to contradict his conclusions. Mr. Bethune refers to the law of nature, that all plants afford certain mineral ingredients, supplied by the soil alone, and when these minerals are removed, be it in the shape of grain, grass, wool, milk, bones, or the bodies of animals, the land will become poorer and unproductive.

So far it is correct.

Yet there are many countries in the old world where for thousands of years a large population found its food, and it is expected will find it many thousands of years hence. It is known, even, that in some countries the fertility of the soil decreased, and when, after a lapse of years, the soil was cultivated regularly, the production increased year after year.

All arable soil originates in weather-beaten or decomposed rocks or stones, and is a mixture of little stones, smaller grains and pulverized particles. If the soil be a product of granite, porphyry, mica, feldspar or limestone, a good loamy soil is formed, apt to bear, by a rational cultivation, the richest vegetation for an infinite time; but even sandy soils consist not alone in poor silicas, for by a strict examination of sandy soils many grains of feldspar, mica, limestone, etc., are found. Still, the richest mineral substances might be barren and not fit to produce any vegetation. Only in contact with air, water, warmth and sunlight, will these dead stones become food for plants. When a rock is exposed to the atmosphere, sunshine and moisture, the surface of the soil will attract and inhale gases from the atmosphere; these gases cause the surface of the stone to decompose, and the dissolved mineral substances in connection with these gases will nourish plants: at first, plants of a lower class—fungi and mosses. Finally these plants fade, and the remains of the plants cover the rock with a substance called humus. This process is going forward year after year: the stone becomes more decomposed, more covered with humus, and more saturated with carbonic acid and nitrogen, until at last the rock bears a new vegetation of a higher order. Grasses and bushes spring up; finally the surface is able to bear grain crops. We see, so far the rock has not lost any mineral substance; on the contrary, is enriched by the gases of the atmosphere and the remains of the plants. This process of decomposing and fructifying rocks is a process executed by nature alone, without human help and labor. In the same way the surface of all soils would change to a more fertile nature, but very slowly.

The problem of agriculture is, on the contrary, to decompose the mineral substances within the soil as fast as possible, and gain by their chang-

ing the food for mankind and animals. When we plow, dig or harrow our land, we design to crumble, to loosen the soil, so that the atmosphere and rain-water not only touches the surface, but most every particle of the soil, and brings it to moulder; more so when we add to the soil ammoniacal gases, be it by means of stable dung or commercial salts. The ammoniacal salts, in connection with carbonic acid, hasten the decomposition of all minerals. By harvesting the plants grown on a soil, we carry most of these dissolved substances away, and the soil appears barren and unproductive again. And yet it is scientifically fixed, that such a barren piece of land may yet contain 10,000 pounds of phosphoric acid, the same amount of nitrogen, (10,000 pounds,) and perhaps ten or twenty times as much potash per acre in a depth of three feet; but this material is so fastly bound to other elements as to be of no use for raising plants. By and by more substances become dissolved, and the soil is able to produce a full crop again. That is, for instance, the case when we fallow the land. Treating the soil in this way, (that is, plowing, sowing and harvesting all the time,) the magazine of dissolved matter is soon emptied.

Therefore to manure the soil is almost as old as agriculture itself. By manuring the land with the excretions of animals nourished on that spot, we return to the land about half the substances we took away by the harvest; and this manure, when collected carefully, will not work only on account of its quantity of ingredients, but more on account of that chemical action it causes within the soil when fermenting. Suppose I give an acre of land 20,000 pounds of stable manure, containing but sixty pounds of phosphoric acid: the manure influences the production of that acre for at least three years, and at the end I have gained not only these sixty pounds of phosphoric acid again in the shape of grain, but three and four times more, and likewise of all substances I added to the soil. It is true, the manure dissolved the substances; the plants took them away from the soil, and one may say after all by cultivating the soil becomes poorer—at least poorer in mineral substances. But what matters it? The quantity of mineral substances within the soil is considerable; and is it not the problem of agriculture to transform these substances into human nourishment? and is not the farmer entitled to bring forward the treasures of his soil just as well as the miner, who brings to market all he can gather of precious metals, or iron, or coal, not caring whether his descendants will be in want of them? Or is the farmer to blame who dissolves the mineral riches within his soil first, and only when some of them begin to decline looks out for other resources to restore them again. If grain or animal produce is high, and commercial salts low in price, it is no harm to buy nitrogen, phosphoric acid or potash in a soluble state to raise the production still more.

A soil producing nothing but grain will be first exhausted; a soil connected with a full stock of animals, whose excrements go back to the soil, will last a very long time: but an estate that sells nothing but spirits, oil, sugar or starch,

and returns all other produce to the soil, will never fail, for spirits, oil, sugar and starch contain no mineral substances,—only oxygen, carbonic acid and hydrogen, gases gained from the atmosphere and water. But there are few farms so well situated as to sell only these last-named products; the most are obliged to sell grains, animals, and the produce of animals.

Therefore, cultivating land ought to be always in connection with keeping cattle or sheep; at least the third part—better half—of the area should be designated for fodder plants: clover, lucerne, sanfoin, lupines. These plants not only gain from the atmosphere a considerable portion of nitrogen and carbonic acid, but by virtue of their long roots draw up to the surface all nourishing elements out of the deep subsoil never touched by the plow. By feeding these plants, and returning the excrements of the animals carefully and rationally to the soil, a rich fertile soil is formed, and grain-raising indirectly promoted. To improve a soil similar to the delta of the Nile, (as Mr. Bethune desired,) where nature has on a small spot a surplus of organic and inorganic ingredients deposited, is impossible.

Taking into consideration that ammonia and carbonic acid are the media to decompose all mineral substances, sheep-holding will, no doubt, whilst not enriching the soil in minerals, yet make it more active, more able to produce grain. The dung of sheep is especially rich in ammonia or nitrogen, is quickly effective, and, as I said before, the dung gained from plants grown on an acre will drive the same acre to a higher production, even when half of the ingredients are lost by selling milk, wool or animals.

Concerning the advisability of keeping sheep, it depends merely upon other circumstances. On a naturally very rich pasture, in the vicinity of large cities, or a well-populated country, cattle-keeping is generally more profitable; but on a lighter soil, in a far-off country, sheep ought to be preferred. Wool is easily transported, and sheep find their subsistence where cattle would suffer, or at least where cattle would but get their living, without yielding more than a profit. It is strange (at least as I observed twenty years ago) that the farming population in America did not like mutton; they preferred to eat pork all the time. In all other countries with a warmer climate—Italy, Spain, Turkey and Hungary—mutton is preferred; it is considered to be more wholesome in a warmer climate than pork. I hope I am understood, not that I am able to make something out of nothing, (as Mr. Bethune says,) but I am satisfied that by keeping sheep, and gaining their dung, the dead mineral capital within the soil will be awakened, dissolved and changed into human food. Yours, very respectfully, E. WENIG.

*Schönlank, Prussia, Oct. 18, 1878.*

[We are much indebted to our intelligent correspondent for his instructive communication upon this question, which unfolds a view of the subject somewhat different from that ordinarily taken. We trust he will continue from time to time to discuss the best and most economical methods of increasing the fertility of our lands—a topic of the greatest importance.—*Eds. A. F.*]

### A Word in Season.

*Messrs. Editors American Farmer :*

I read your last issue and I trust have been benefitted as well as pleased. There are things we gladly see that come to us now and then—the papers, as also our friends and neighbors. We like to stroll around and see and speak of whatever presents itself to our view. It is by reading, observation and conversing with the people we receive and dispense information. Man is a social being, and to a certain extent his company should be enjoyed. By the collision of intercourse we become more or less polished.

So far we have enjoyed a pleasant autumn: we have had little or no frost, and forests maintain their usual verdure. We had but one storm of any significance, and that prostrated the corn and made the operation of cutting more tedious, and retarded seeding. Much grain is already seeded and in good time; I trust all will be. Of the corn crop I think it is not so abundant as last year's, owing, doubtless, to the cool spring and frosts; such weather suits the grub and cut worm. The wheat was good, but prices of the preceding year were not maintained. People blame one thing or another for low prices. I attribute it to the laws of supply and demand. When prices are up we embark in improvements and betterments—yea, we may then be induced to turn an honest penny in some reasonable adventure.

Those who have not threshed out their wheat or delivered it, will have time to do so before the corn can be shucked and housed. Soon we will see the forests decked in their autumnal glory and variegated with all the colors of the rainbow and sunrise. Ere the sere and yellow leaf appears and the frost strikes into the ground and congeals the surface of the water, we should be well up with our preparations for winter. Man and beast must be provided for. What is our interest should be our pleasure. We and our families know what it is to be comfortable, and we aim to be so. Further, we should know our interests—we should make every effort to have an abundance of wholesome food and comfortable lodgings—ground corn or brownstuff; then our stock will maintain their flesh, fatten and be ready for market much earlier. An animal kept in order or pushed will be off your hands sooner than if pinched and exposed.

In a country I have visited I was told they pushed their young stock from the start, and at two years old they equalled the ordinary cattle at a year older; and they said they could manage twice as many for market. Comfort and economy indicate that everything needed for winter should be provided early. With fuel gathered early, cut up and sheltered, the trouble would be less and the comfort more. Whatever is put off from day to day is left entirely undone sometimes. The season is at hand for planting trees for timber, fruit or ornamentation. Every place should have enough of every sort for liberal use for all. I am told it is the custom, if not the law, to set out trees of every sort in Germany, annually. The United States is well wooded—perhaps the best in the world for its size. Too much is destroyed every year.

From what I learn the farmers have prepared an increased acreage for wheat, and done it well; lime, fertilizers and manure have been freely used, and more clover than usual turned under. I write once in a while, not that I know more than most people, but from a sense of duty: out of the abundance of the heart the tongue will speak. The pen, however, can reach further and makes a more permanent impression. I like to read what my brother-farmers have to say. What the old know the young have to learn: by writing, information is perpetuated. A man has to leave his property, let it be ever so much; but if he imparts instruction, orally or written, it may live after him. We are indebted to our predecessors for much, especially those that wrote their experiences and their theories. We should never be too proud to learn, and should welcome information of those who have kindly given their knowledge and experience, that the public might be benefitted. Yours,

West Virginia, October 22.

C.

### Haymarket (Va.) Agricultural Club.

Messrs. Editors American Farmer:

The club met at Mr. O. Wittichan's on the 1st November, with all the members present. The committee appointed, as well as the other members, inspected the buildings and stock on the place; and the committee's report was favorable to our host, a fine lot of cross-bred Southdowns being much admired.

"Which is the best way to preserve corn fodder if not housed?" was the first question discussed. Our worthy president decidedly recommends the binding of the fodder into sheaves, using the fodder as bands, and doing such work when the fodder is damp and then ricking it, having the butt ends on the outside, and using during winter layer by layer. The majority of the members follow the custom of the neighborhood, viz: Shocking up the loose fodder in long ricks and topping the same off with layers of the same material.

"Does it pay better to buy cattle in fall and keep them through the winter and then fatten them, or buy them in the spring of the year?" was next discussed. While the members all agree that in late years, and especially the last, little if anything was left after deducting expenses, the majority, if not all those having experience on this subject, believe it better to buy cattle in fall, some even claiming that they would prefer to board cattle if feed was not on hand. A larger number of cattle are generally driven into the country in the fall of the year, and consequently it is easier to suit one's self.

The manure from cattle fed during the winter was also considered an item of great importance, as were the hogs raised by following the cattle. The owner can at will push the cattle and keep them in a thrifty condition and fatten them easier, and send them to the early markets which are known by experience to be the best. Loss of weight generally occurs after driving or railroading, and this speaks against buying in spring, where the time is lost in making up such loss. Also much time is lost in acclimating the

animals to other conditions and feed, and the owner does not know the individuality of his cattle as when kept during the winter months. The members will report their different experiments on the fertilization of corn at the next meeting.

W. L. HEUSER, Secy.

### Deer Creek Farmers' Club.

This club met on Saturday, November 9th, by special invitation, at the residence of Mr. Benjamin Silver, near Churchville. We copy from the report of the *Aegis*:

In the temporary absence of the president, Thomas Lochary was called to the chair. The committee of inspection reported their gratification at the convenient arrangement of Mr. Silver's barn. There was a place for everything and everything in its place. The barn is a triple-decker, and so arranged that you can drive into the third story, from which hay, &c., can be placed in the mows with the least possible labor. Mr. Silver's stock of all kinds looked well, the farm was in fine cultivation, and the committee thought Mr. Silver, if a member, would be an honor to the Deer Creek Farmers' Club, as he would add to it his enlarged experience and sound practical wisdom in matters pertaining to farming.

The following subject was announced for discussion: "Is the increased yield and the improved quality of the wheat crop in Harford county owing to the use of fertilizers, to improved methods of farming, or to natural causes?"

John Moores was of the opinion that the improvement in quality of wheat is due to fertilizers, especially bone-dust, to good farming and to the selection of good seed. He recollected when our wheat was classed as No. 3 or 4; now it brings the highest market price. Then farmers used to sow refuse seed; now they sow the best. Phosphates will produce more straw than bone-dust, but when threshed you will find that the bone-dust has produced the most wheat.

R. Harris Archer agreed with Mr. Moores as to the relative effects of bone-dust and phosphate. The latter will not produce as plump or as bright grains as bone-dust. As to the question under discussion, crops are certainly larger now than formerly, and the increase is attributable, in some measure, to the varieties of wheat sown now. Fultz wheat seems to be doing better every year. The grain is perfect, but not quite long enough. Wheat raised in this section ranks as high as any sent to the Baltimore market.

E. M. Allen said the increased yield was owing, in a considerable degree, to the favorable seasons; also in an equal degree to greater care in cultivation and increased fertilizing of the ground. The yield of wheat he knew had increased. Up to 1877 he never raised more than 20 bushels to the acre. Since that time he has raised 47 bushels. He had always been farming on good ground. He would attribute the increase, therefore, more especially to favorable seasons. We may have our ground well fertilized, sow good seed and all that, yet if the season is unpropitious we will have but little wheat.

W. D. Lee agreed with Mr. Allen, in thinking the increase attributable to remarkably favorable seasons.

William Webster thought the effect of the seasons should be left out of the question. It is difficult to decide what has caused the increase, whether the selection of seed, good farming or the use of fertilizers. He would ascribe it to the increased fertility of the soil, induced by thorough tillage and the use of commercial fertilizers.

James H. Ball said his knowledge of wheat-growing in Harford county only extended through the last eight years. He had, however, talked with old men who said there are not as large crops of wheat grown now as there were years ago. The good crops of the last two years were owing as much to good seasons as to other causes.

George R. Glasgow said he was raising better crops than he used to. A farmer cannot afford to raise an inferior crop. Farmers now use more fertilizers and take more pains to raise good crops. He aims to plow under more clover, thinking it better than any bought fertilizer that can be used. The increase he thought due to good farming, fertilizers, and natural causes combined; but if you have your ground in good order and sow good seed, you will be likely to have a good crop.

Thomas Lochary thought the increase was mostly owing to the seasons. Is in favor of good farming, good seed, good fertilizers and good seasons to ensure good crops. Drilling wheat is much better than the old-fashioned way.

Dr. S. B. Silver thought that on some of the Deer Creek land there had not been much increase, but farther out in the country there had been a great increase. He remembered when splendid crops of wheat were raised on Deer Creek, but the land wore out. If bone had been spread, years ago, as it is now, they would have had greatly increased crops. The improved quality of wheat is due to a succession of good crops, thus perpetuating good seed. When we do not have a good yield we have indifferent wheat also. He attributed the increase to the fertilizers used and to better farming.

James Lee said the crops on his place had been steadily increasing for the last 6 or 8 years, from 16 or 18 bushels per acre to 25 to 40 bushels.—The increase is not due to better farming, or better machinery for preparing the ground or planting seed, but to the use of fertilizers.

Silas B. Silver regarded the increased quantity as certainly due to fertilizers. If we cease fertilizing our crop diminishes. As to the improved quality of wheat, careful selection every year, getting purer and brighter seed, has a tendency to improve both the quantity and quality—just as in stock-raising we select the best to breed from. The season also has something to do with the increase and improvement.

Albert Silver thought the increase due to fertilizers and the varieties of seed sown, and not to the manner of farming. He did not suppose the yield would have been increased proportionally, 30 years ago, if wheat had been sowed in the same manner as now. We cannot expect a

proper yield if we use inferior seed, and we should be careful in selecting seed.

Thomas A. Hays regarded the increase as due to the use of commercial fertilizers and good seed, more than to the manner of tillage or the seasons.

Benjamin Silver took it for granted that the quantity of wheat raised in this county is greater than fifty years ago, because more acres are now sown. The improved quality he attributed to the use of fertilizers. Their use had also increased the yield per acre. Fifty or sixty years ago very large crops were raised on Deer Creek farms, without the use of manure, where now nothing at all could be raised without it. The large crops of former years were due to the natural fertility of the soil. By a long course of farming in wheat, the land became exhausted of some of the constituents of wheat; that has been partly made up by fertilizers. We might safely say that the increased yield is owing to fertilizers, to an improved mode of farming and somewhat to seed. Farmers fifty years ago were as careful as now in selecting seed, but we have a greater variety to select from. The seasons, he thought, have a great deal to do with the improved quality of the wheat.

Wm. T. Easter thought the improved quality is due to the use of fertilizers, and the increased quantity to the favorable seasons we have had of late years. Improved cultivation has not improved the quality, but may have increased the quantity.

Isaac Wilson thought the increased yield was entirely due to manure. There is a great deal of land where 30 or 40 bushels per acre was raised, years ago, where nothing at all can now be raised without manure. The large crops of the last few years he attributed to the favorable seasons.

Wm. Munnikhuyzen argued that, with the exception of the last two years, there had been no increase in the yield of wheat as compared with 30 years ago, although his land had improved in quality so that he could raise three barrels of corn where his father raised one. The good crops of the last two years he ascribed to propitious seasons. He believed that our lands were becoming exhausted of some properties necessary to raise wheat, which bone-dust and other fertilizers supply.

David E. Wilson agreed with Mr. Munnikhuyzen. Some farms on Deer Creek did not raise so much as 30 or 40 years ago; other farms where the land is good raise more. In some places fertilizers have had a great deal to do with the increase. Improved farming also has had something to do with it, but not so much as fertilizers.

George E. Silver, the secretary, said if there had been any increase it was due to the improved methods of cultivation and to the use of fertilizers; for if we cease to apply fertilizers for two years our crops fail. He summed up the causes as attributable to better cultivation, improved machinery, the use of fertilizers and favorable seasons.

Johns H. Janney, the president, thought if the increase was not from the use of fertilizers, we had better stop buying them. He believed the increase was derived from fertilizers, and also



due to advances in the mode of preparing ground. No doubt seasons have a great deal to do with it. Has seen the experiment tried of ceasing to fertilize and the crop failed.

A vote of thanks was tendered to Mr. Silver for his hospitality in entertaining the club, and for setting such a worthy example as a farmer for the last thirty years.

## OUR FRENCH LETTER.

### Preserving Corn-Fodder.

Messrs. Editors *American Farmer* :

It is up-hill work to be an innovator. M. Faucon since several years has saved his vineyard from the phylloxera by inundating the vines in autumn for two months, and liberally manuring them in spring. People disbelieve him, although he invites the incredulous to come and see. M. Goffart, of Burtin, is another case in point; he has introduced the plan of feeding and fattening stock on chopped green forage, preserved in trenches during every season of the year, winter and spring especially; he also is despised and rejected. He lately invited the agriculturists from all parts of the world, brought together by the Exhibition, to visit his system at work. Some 100 cosmopolitans accepted his princely hospitality, extending to even placing a special train at their disposal. The carts laden with the freshly-cut Nicaragua maize—stalks of giant proportions—discharge their loads; the stuff is raised by machinery—all the latter is driven by a turbine which also works a saw-mill, and passing from the feeding board to the knives, where it is chopped into rings one-third of an inch thick; thus shaved, the stuff is again lifted, and slides down into the trench, where a man and woman spread and tread it; when full, the trench is covered with boards, in which large stones are piled at the rate of 8 cwt. to the square yard. In this condition the forage will keep admirably, and without fermentation, till required for use; it will remain for months without becoming heated or deteriorated. The trenches are 40 feet long by 16 wide, in cement, and the roof is 6 feet above the wall, to allow room for working the planks and the stones. Beside the building is the old trench, sunk in the soil and filled with cut-green rye since May last, perfectly preserved. The trenches or reservoirs are elliptical, because corners interfere with safe pressing down. M. Goffart has 68 head of cattle, and has sufficient fodder thus conserved to feed or fatten 90 more. The stuff when taken from the pit is at once served to the animals, who devour it with a gusto. I notice in his new cow-houses, that the story above them is a barn; the entrance doors are of iron, and in two parts, sliding upwards, &c., by means of chains and weights.

### Cotton-Seed Cake as Feed.

In the Southwest of France, cotton-seed cake is entering largely into the dietary of farm stock; the preference is given to that prepared from Egyptian seeds, as it contains fewer filaments of cotton, is more nutritive, and above all less liable to become musty. It is in Marseilles this kind of cake is obtained, and where each manufac-

turer is obliged to stamp on each cake the trade mark of his establishment,—hence, a guard against fraud. Cattle and sheep eat the cotton-cake with avidity when simply crushed, and without any mixture; it takes the place of meal and potatoes, when joined to beet, for the feeding of pigs, and horses accept it with their oats, chopped hay or bruised maize. It best resists humidity, as compared with linseed, colza or hemp cake, and is cheaper—fr. 6  $\frac{3}{4}$  112 lbs. taken at the factory. Cattle may be given 6 lbs. daily of cotton-cake, pigs 2, sheep  $\frac{1}{2}$  of a lb., and horses somewhat less. The chief objection against hemp-cake lies in the difficulty of preserving it in large quantities for any length of time; it is best when obtained daily from the mill; it is otherwise nutritive and cheap, though some allege that it is heating, especially for young animals, like colza.

### Agricultural Machines at the Exposition

There is but one regret to register in connection with the agricultural section of the exhibition, viz: that all the implements and machinery instead of being scattered over the palace in annexes, had not been concentrated in a single building. Class 51 comprised agricultural implements, besides processes employed in the cultivation of fields. There were 486 exhibitors: France had 207; England and her colonies 83; United States 41; Belgium 18, and Russia 24. There were shown a total of 203 plows, 137 threshing machines, 23 scarifiers, 62 mowers, simple and combined, 58 reapers, 104 sowers, and 20 machines for tilling land by steam. The jury consisted of 13 members: 5 for France, 2 for England, 1 for the United States, and the remainder for other nations. The jury devoted 36 days, of three hours each, to the actual examination of the exhibits, and 12 more to deliberations. Eight nations, though competitors, obtained no prizes—China, Japan, Central and South America, Portugal, &c. There were awarded 6 diplomas of honor, 32 gold medals, 79 silver and 89 bronze ditto, plus 78 honorable mentions, or a total of 284 recompenses,—being at the rate of 58 per cent. of winners on the entries. In the order of merit, based on the honors won, per the number of exhibitors from each nation, the following is the position, taking 100 as the standard: the United States score 88, Belgium 82, Austria 77, England and Hungary 72, Denmark, Norway and Russia 67, France and Holland 50. But of the 32 gold medals England has obtained 10, the United States 4, and France 15. The threshing machines shown by England, France, the United States and Russia, were very superior;—the American ploughs were magnificent, and were distinguished by careful workmanship, solidity and form, united to cheapness; in addition many of the implements were very ingenious. The general display of reapers and mowers was most excellent, and the day cannot be distant when the "perfect harvester" must appear.

### Dairy Topics.

What may be called the "Dairy Congress," held at the Trocadero, was interesting, and treated chiefly on the preparation of butter: the feeling seemed to incline towards the Scandinavian plan of churning at low temperatures, which

economizes time, insures the butter-keeping better, and secures its aroma; if the process has failed, such is the consequence of not following correctly the system. An observation was made that much of the difference existing as to the richness of milk in fatty matters resulted from bad instruments made to measure the quality, and that thermometers were very defective. A prize is to be offered to the inventor of an instrument for testing the presence of margarine and other matters employed for adulterating butter, and which it seems enters largely into the butters exported or sold in large towns. Margarine sells for one-third the price of average butter, hence the profits must be enormous. In Paris there are establishments specially devoted to the sale of margarine, and have the air of model dairies, or of such as Marie Antoinette had conducted, personally, at the Trianon. It is said that the actor Liston purchased his own milk, and approached the dairyman always with two jugs, one for the milk and the other for the water. If we could buy our butter in two component parts! It was stated at the congress that the inferiority of Bretagne butter, as compared with that of Normandy, results first from the dirty manner in which it is prepared, and next from negligence as to its preservation.

#### Commercial Manures—Agricultural Stations.

There are a few annexes of the exhibition devoted to commercial manures—to what may be called the scientific results of agriculture. There are companies and private fabricants who have seemingly an endless collection of fertilizers. It is the practical triumph of chemistry, which, discovering the secrets—more or less complete—of the fecundity of soils and the necessities of vegetation, has acted accordingly. Science, as Liebig has excellently said, either approves or invalidates the conclusions of practice. There are exhibited even special fertilizers for kitchen and flower-gardens. What progress since the seventeenth century for France, when a royal decree directed that the mud of Paris, its night soil and the offal of the slaughter-houses were not to be employed as manures till they had rested three years in a common pit. It was Lavoisier who may be said to have founded agricultural chemistry, or what is summarily known now as "agronomical stations," where the laboratory is in connection with field experiments. The revolution swept away Lavoisier and his laboratory. Boussingault took up his idea, and effected some valuable experiments, though in a private capacity. Germany followed up his discoveries, and at once took the lead in establishing agronomical stations, above all controlling the sales of commercial manures, as the chemist has the right to enter the factory when he pleases, and select samples for analysis; nay, more, the farmer even after purchasing has the right to select his sample and have it gratuitously analysed. France quickly followed in the wake of Germany, and has no less than 80 "stations," the chief being at Nancy, under the direction of M. Grandcau, who has trained several noted scientists; he executes analyses for the universe at large. The station at Arras is famed for its study of the cultivation of beet,

in connection with the production of sugar and of alcohol. It is at this farm that M. Pagnoul has been able to formulate laws as to the action of nitrates on beet. The root is best suited for the sugar fabricant, when the plant grows rapidly in the first three months of its vegetation; the nitrates then pass into the leaves and stimulate development. Now, if the latter takes place markedly only in a warm and humid autumn, fresh rootlets are thrown out, the nitrates and ammoniacal sulphates, instead of being gradually worked up, rapidly concentrate in the bulb, and produce disastrous results on the yield of sugar.

#### The Beet Crop.

The yield of beet in France this year (and the same remark applies to Germany) is now known to be inferior to that of 1877. Germany had 260 sugar factories in full work during September. The selling of the beet according to the relative density of juices, is making way in France and promises to become general; it will protect both the farmer and the manufacturer, and will, above all, give the death-blow to the employment of nitrates late in the season.

F. C.

Paris, November 7, 1878.

#### Work for the Month—December.

The approach of the winter season—when out-of-doors work will be largely suspended—admonishes the farmer that the work of the year should be rapidly closed up, and all needful preparations made for the comfort of man and beast, and the completest securing of the crops of the year.

**The Corn Crop** ought to be safely stored free from the ravages of all prowlers, whether biped or quadruped. So, too, the husks and fodder ought to be conveniently stored away where they can be got at as needed.

**Tobacco.**—That in bulk should be carefully noticed, that no heating and discoloring takes place. In stripping, as favorable seasons permit, observe great care in handling and in the strictest assorting of the various grades, attention to which is amply compensated when the crop is put upon the market.

**Plowing.**—The exposure of stiff lands to the winter's freezings and thaws is of great benefit, and spring work is forwarded by so much as can now be achieved.

**Live Stock.**—Regular and constant attention during the winter months is an essential to the health and well-doing of farm stock of all kinds, and self-interest unites with humanity in requiring this to be zealously given them. Regular exercise should be given horses, and those at work should have their feed increased proportionately, that the demand for the maintenance of vital heat during cold seasons may be supplied as well as the loss of muscular tissues occasioned by their labor. After a day on muddy roads they should be rubbed dry at night, and be well bedded, and nothing conduces more to their comfort and healthfulness, too, indeed, than the regular daily use of the curry-comb and brush.



Cows in milk need now the most nutritious feed, and if a supply of succulent roots, such as sugar beets or mangels, rutabagas, turnips or carrots, they will be at once useful and health-giving, and he is a fortunate man, and deserving commendation as well, who has secured crops enough of the several kinds to vary throughout the season the dry rations of hay and corn fodder by abundant messes of these, which will go far towards maintaining the flow of milk and the health of his kine. Be especially careful not to let your cows fall off in flesh and milk early in the season, for great is the difficulty of bringing them up again.

Stabling for cows should be moderately warm, but not close,—ventilation being secured without exposing them to the drafts of winter winds. An occasional carding and brushing conduces to cleanliness and aids in keeping the skin in good condition and health.

Do not winter your young cattle and colts at the straw pile and expect them to regain afterwards what they are losing now. Such animals must be kept growing continuously, and to stunt them by merely continuing their existence through the winter is fatal to all hopes of making perfect or useful creatures of them. So, likewise, heifers and cows in calf need liberal food and places of shelter in case of storms of wind and rain.

Shelters should be provided, too, for sheep; they all should not be close, as, except when it blows, or rains, sheep are better in the open air. Feed a little grain and bran and salt regularly. Water is as necessary in cold as in warm weather.

Hogs ought to be given clean and dry quarters, and pushed vigorously forward so as to be ready for killing. See that they have abundance of clean water, and keep them supplied with ashes and lime, charred and rotten wood, all of which seem to act as tonics.

Your poultry will pay you for attention to their winter quarters and their diet. The former should be warm and dry, and the latter varied in kind and ample in quantity. Sour milk, table scraps, boiled turnips, scalded bran, are all suitable changes from the usual whole corn rations.

**Compost and Manure Piles** may readily be enlarged at this season, when materials are abundant. The dead leaves, road scrapings, straw, fine litter, the house-slops, and similar articles apt to become nuisances if left alone, are all used to advantage in increasing the store of plant food in your compost heaps.

**Ditches and Drains.**—Look well to these, that they are kept clean. Especially see that surface drains are unobstructed.

### Big Trees.

Gen. L. Giddings, near Annapolis, Md., has a white oak, within 50 yards of his house, which is *twenty-one feet in circumference*. It is sound and healthy and symmetrical in form, and as grand a tree of the oak family as can be seen. There must be many ancient and large specimens of trees yet remaining in the Atlantic States, and it would be interesting to have our readers report any trees on their farms or in their neighborhoods remarkable for their size.

### Improving Poor Lands—Judge Fullerton's Farm.

During a brief visit last month to Fairfax county, Virginia, we saw a demonstration of the truth that the recommendations of Com. Jones' essay—republished in this issue of the *American Farmer*—have lost none of their value and force in the time elapsing since they were made, and that, in the almost immediate vicinity of their author, their practice has produced a revolution like magic in lands worn-out by improvident management and so harried by war that practically their cultivation was abandoned.

In 1868, Mr. Harrison G. Otis, a gentleman who had been a merchant in New York city, but who for a number of years had owned and worked a fine farm near Seneca Lake, in one of the richest agricultural regions in the State of New York, and noted for the success and intelligence of its agriculturists, had his attention attracted to Fairfax county, where the low price of lands, their capacity for amelioration, the short distance from markets, together with the comparative mild and short winters, and the healthfulness of the region, seemed to him to promise returns for the investment of capital and labor. He bought a tract of some 1,100 or 1,300 acres, at the time of purchase entirely unimproved, and set himself to the work of its development. A railroad station (Clifton) was established, roads made, a hotel erected and various enterprises begun as the resources of the tract were opened up. On one side a steam factory for making spokes was put up, the second-growth white oak furnishing excellent timber for that use, and on the other a mill for getting out staves for nail kegs from the immense quantities of low pines which abounded, and which, when the demand was greater than during the present depression in nails, gave a return of \$80 per acre from land the prime cost of which had been but \$9. On the property was found a quarry of a stone which has proved to be fire-proof, and in another place one of soapstone. The latter has not yet been worked, but the product of the other is attracting attention from abroad, and considerable quantities of it have been used in the construction of the Alexandria, Va., city water-works.

Simultaneously with these operations, farming work was pushed along, the growth of pines removed, ditches dug and crops gotten in. The station has developed into a village, with several stores, churches and a public hall, and friends of Mr. Otis, and others from the North, following

his example, have bought farms and pursued the same course of amendment.

A reference to the processes adopted on two of these places will suffice to show how the operation was carried on of bringing up thrown-out pine barrens to a state of fertility which would reflect no discredit upon any farming country.

The Rev. Wm. B. Otis, a brother of the gentleman referred to above and a part of whose original purchase he acquired, and whose well-ordered farm showed on every side evidences of complete system, declares the secret of renovating these lands is found in *deep plowing* and the use of *lime*. It would seem, indeed, that lime is the touchstone that transmutes their nature. He showed us parcels on which no other application had been made, and which ten years ago grew nothing but sedge, and which now are covered by a thick dense turf of natural grasses, without a seed artificially sown. Clover, too, responds as freely to its use, and shows by its vigor and persistence of growth its adaptability to the soil, whose improvement, where it has once taken hold, is scarcely problematical, indeed is easy of accomplishment. On the oat and wheat stubbles the set of clover was thick and tall; in truth, on one field, where no seed at all had been sown, it looked almost as well as on the others,—showing the natural adaptation of the soil to its growth. Mr. Otis has no trouble in raising crops of wheat of 30, and of corn of 80 bushels to the acre. The soil is a clayey loam, underlaid by a subsoil of reddish clay, which, as he says, is better than the surface, and does not vary in quality to any depth yet reached. This year, from an unfavorable season, hail storms, &c., the wheat yield is reduced to 18 bushels. Fruit succeeds well, and on this farm are thrifty young orchards of apples and pears. Mr. Otis has built a convenient and roomy barn and other out-buildings, which, with the dwellings and all the surroundings, show judgment, care and good taste.

The farm adjoining is that of Judge Wm. Fullerton, an eminent lawyer of New York. It comprises about 700 acres, and although seven years ago it was entirely covered with growths of pines and sedge, it is now a picture of productiveness. It is in no respects a "fancy farm." Everything looks as if meant for service and for profit; and while its distinguished owner probably finds in it diversion and relaxation from his professional labors and cares, we doubt not that it is the highest pride with him to make it pay.

When the Judge bought the property it was unfenced and without buildings, and from all accounts as unpromising a piece of land agriculturally as could be found. The liberal use of artificial manures—super-phosphates, potash salts and lime—have with deep plowing produced the change now visible. Mr. Fletcher, the manager on the place, and a thoroughgoing and zealous farmer, informed us that *fourteen inches* is the depth he seeks now always to have his plows run. A good crop of clover served as the foundation of future improvement; that was turned under and the after-steps were comparatively facile. A field of corn this year of about ten acres, heavily manured, and planted in drills, the variety being the large-eared Chester county

yellow, was estimated, by taking a certain number of the average shocks and husking them, to have yielded over 25 barrels to the acre; and some of the clover fields cut quite four tons to the acre. From this may be judged the present fertility of the soil.

From the number of cattle kept, and the leading feature of the farm being the production of milk and butter, a large variety of forage is grown. Clover, of course, is the main-stay and reliance, and orchard grass is a favorite, producing largely and giving the earliest and the latest bites, whilst lucerne and millet are also grown to considerable extent.

The large number of cattle produced on this farm gives a great quantity of manure. This is preserved in a large shed at one end of the barn and is never exposed to the weather. As it is removed from the stables, it has thrown over it daily a sprinkling of kainit.

Judge Fullerton, as has heretofore been noticed in our pages, has on his farm a large herd of pure-bred Holstein cattle, numbering now, young and old, about eighty head, which about fill the capacity of the present extensive and well-arranged barn, though we believe it is the intention of their owner to allow the numbers to increase by reserving all the females. These cattle are of large size, roomy frames, black and white in color, and noted for their copious milking capacity, and above most other dairy races in their adaptability to making beef when dried off. At the head of the herd is the bull Highland Chief IV, a massive specimen of the breed, weighing at one time, when in show condition, 3,000 lbs. For one of the cows, imported Eva, the claim is made of having produced the greatest yield of milk on record. Mr. Fletcher informs us that she once gave 10½ gallons of milk (42 quarts) within the 24 hours, fed on green food and a moderate allowance of bran. Her daughter, Beauty of Clifton, gives promise of being almost as remarkable a milker.

The soiling system, we believe, is adopted with the cattle during most of the year, and they are turned out only during a short time each day for water, which is abundant, soft and pure. Heretofore milk has been shipped from the farm, but at the time of our visit it was being made into butter.

#### Fair of the Cecil County (Md.) Farmers' Club.

Although Cecil has no agricultural society, and it is thought by many that its geographical divisions are such as to preclude the successful operation of one which should take in all parts of the county, it has in the Rising Sun district a useful Farmers' Club composed of intelligent and successful agriculturists, who, in addition to the meetings, discussions and inspections of each other's farms, usual in such bodies, has adapted the feature of annual fairs. The one of this year—the second it has held—took place on the 6th of Nov. at the farm of Mr. Adam R.

Magraw, and was well attended,—there not being, we think, less than 800 or 900 persons present.

The exhibition was a creditable one, the interest displayed by visitors was hearty, and the arrangements satisfactory and ample. Pens had been prepared for the stock brought, and tables arranged on the spacious threshing floor of the barn for fruits and the products of the household and the dairy, and under the wagon sheds for those of the field and the garden.

A number of good horses were entered, some excellent Short-horns and Jerseys, and a large number of grades, fat steers and working oxen. There were some fair sheep and swine, and a number of pens of improved fowls. Some local manufacturers had praiseworthy exhibits of implements, carriages, wagons and harness. The ladies had pretty well filled the quarters assigned them with specimens of their skill in the way of bread, cakes, pickles, preserves, needlework, &c. Several collections of cut flowers were shown, and one lot of handsome greenhouse plants. The fruits and vegetables were good and numerous. Indeed every department customarily found at such shows was well represented.

The cattle were especially meritorious. Mr. Preston had Plumwood Q, 15,160, a large deep red bull, bred by Mr. Dun, of Ohio, and sired by the 20th Duke of Airdrie, a bull which sold for \$10,000. He also had a number of grades, all of them of superior quality.

Mr. J. W. Lincoln showed the Short-horn bull Hendricks, sire Imp. Grand Duke of Geneva, (31,287,) dam Bloom, and three yearling heifers, May Flower 2d, a beautiful red, sire 2d Earl of Oxford, 6,740, dam Melody 6th; Matchless, a roan, sired 4,707, Alf Arslem, dam Melody 6th; and Flora's Geneva, a handsome red roan, sire Imp. Grand Duke of Geneva,—all these of good square forms, straight backs and soft mellow touch. These were all bred by and bought from Mr. John T. Cowan, of Virginia. A cow, without pedigree, with a calf by her side, was one of the handsomest animals we ever saw.

The oxen were numerous and superb. The pair of Mr. J. W. Lincoln weighed 4,250 lbs., and those of Mr. John S. Ewing 4,050 lbs.

Mr. Magraw exhibited a number of handsome Jerseys, the bull now at the head of his herd having been purchased from Mr. Sam'l J. Sharpless, and in addition to the stock bred by himself he has recently purchased a number from the sale of the late Col. Ramsay McHenry, as heretofore noticed in the *Farmer*, all of which were shown.

The Farmers' Club gives no prizes, but where an animal or article is deemed worthy of a first prize it receives a well-executed diploma, and these are justly prized by all whose deposits receive them.

A husking match was an incident of the day, and evoked some enthusiasm among the friends of the several contestants for a pair of husking gloves, which was the prize offered.

Advantage was taken of the assemblage of so large a number of persons to have a public sale of live stock and a variety of other articles. Mr. Magraw sold some Jersey calves and grades, a bull for which he no longer had use, implements, &c.

The example of this club is one worth imitating by similar associations. The good to accrue from such fairs cannot but repay the trifling expense they cost. The local enthusiasm, the stimulus to endeavor, the wholesome rivalry to present the best animals and products, the meeting each year of friends and neighbors, are results to be sought for at some expenditure of time and labor. The Cecil Club deserves commendation for its progressive ideas and the effective manner of carrying them out.

The country in which the Club is located is one presenting unmistakable evidences of general thrift and prosperity. The lands are well improved, and the fertility of a soil kindly by nature is preserved by good treatment. Dairying and the raising of hay are the main specialties of the farming, but a good many cattle are fed. The accessibility of the two large cities of Philadelphia and Baltimore makes this region a favored one as regards the marketing of its products. The superior quality of Cecil county hay is well known, and the system of managing the crop was given at length in our July edition of 1877 by a number of members of this club.

Mr. Magraw's farm is one fortunately situated naturally, bounded on three sides by public roads, improved by a handsome and comfortable dwelling and a commodious barn and other out-buildings. It contains some 250 acres, and is cultivated in the main as a dairy and stock farm.

Mr. M. produces a fine article of Jersey butter, some 60 lbs. of which is shipped weekly to a popular restaurant in this city, and the balance goes to Philadelphia. He is also engaged in breeding Jerseys for sale, this latter specialty having superseded the raising of horses, which has been found to be an uncertain and expensive business. His herd of cattle now contains some beautiful and meritorious animals, and he seeks to constantly raise the standard of their productiveness.

Looking into his dairy and butter room, we found the milk is set in pans in running spring water. The cream is churned twice a week by horse power. The butter after being worked in a rotary butter-worker, is then weighed into half-pound lumps, which are given their shape by a press worked by the foot, from which they come bearing the producer's monogram, a guarantee of their quality and flavor, which is indorsed by their golden color and waxy texture.

Mr. Magraw is an energetic and enquiring cultivator, who aims to vary the productions of his farm. This year he has grown upon five acres a crop of tobacco, and we noticed a lot of wheat evidently so drilled as to admit of its cultivation. He expects next season to make a practical test of the preserving of green corn-fodder, he having been posting himself on the latest modifications of the process as contained in M. Goffart's last work. With the conveniences he has at hand, we shall look with interest for the fruits of his experiments.

A party who claims to have experimented largely with it, claims that a mixture made of equal parts of red pepper, alum, rosin and sulphur, will cure chicken cholera. Feed a tablespoonful of this mixture in three pints of scalded meal daily, and the chicks will get well speedily.

### The Walters Importation of Percherons.

The splendid specimens of the Percheron race brought into this country by Mr. Wm. T. Walters of this city have not only a local but a widespread reputation. In the last number of the *National Live-Stock Journal*, we find an extract from a letter, not intended for publication, from Mr. Colin Cameron, of Pennsylvania, which we reproduce. The horse Morock therein referred to was purchased at Mr. Walters' sale in 1874 by the Farmers' Club of Queen Anne's Co., Md., but, unfortunately, after getting a number of fine colts, died a few months after they secured him. Of the Walters horses, Mr. Cameron writes:

I never saw the equal of his horses for style, strength, and ability to go great distances with heavy loads. I have known the mare Alene (521 of the Stud Book) to travel forty-five miles in five hours, with a wagon weighing 600 lbs., and two men weighing at least 300 lbs.—and Kate (569 of the Stud Book) was the better mare of the two. His imported horse Morock (729 of the Stud Book) could travel with any thoroughbred or trotting mare in or around the city of Baltimore. Mr. W. for a long time drove him and the thoroughbred mare Prude (once Wade Hampton's) together in a carriage, and Morock never flagged or tired when performing the longest or fastest drives.

F. J. Schreiber, of Allentown, Pa., went to see Mr. Walters' horses, and was so much impressed with their superiority after seeing them work and go on the roads, that he went to France and bought there himself, in the Perche district, two stallions and two mares. One (Leo) I saw, and he was the exact style of the picture of Mr. Dunham's Success, only larger, weighing, when in condition, I think, 1,800 lbs., or possibly more; but none of them had the marvelous power that the horses of W. T. Walters had. Mr. Schreiber went to France with the model of the Walters horses in his eye, but failed to get as fine a type, because he did not take the time to make his selections.

Mr. Walters went to France, and noticed the ponderous strength, or, rather, the strength that enables the Percheron to move great loads with ease in the city; and going into the country he noticed the great ease and rapidity with which they traveled before heavy loads. Being able to speak the language of the country, and traveling over the whole district of ancient Perche on foot, going to the breeders' homes, and being with them for three years, he knew just what he was getting, and he bought horses that he knew. And being a remarkably good judge of the animal, he of course could make good selections when he had thousands to select from and three years to do it in. He bought none but greys, because, he says, that they must be greys to be pure; and, though the opinion has gone the other way, I must confess to the belief that, if we had demanded the grey color, it would have been much better for us.

The McNitt Horse, as you describe him in the Stud Book, could be taken for a fair description of Walters' Morock. He was a trotter, and his get are trotters—there is not a weedy or bad one among them—and the same may be said of Hercules. I do not know of a half-breed colt from either of the above named horses, either in Maryland, or Virginia, or Pennsylvania, that is not sound and a good mover, besides being unsurpassed for all kinds of work.

Inquiring of a member of the club that purchased Morock, as to the quality of the colts he got, he replies as follows:

"As far as I have seen, they are very fine; indeed, I have not seen an indifferent one. Morock's death is regretted by all who see his colts. I have four, but have used only one sufficiently to report on him. He has as much spirit as a blooded horse. Two of them did the work of three horses this fall while I was seeding wheat. N. thinks they cannot stand the heat; but mine worked through the long, hot days of July and August and kept his rows up with the other horses.

"To sum up, they are of fine size, symmetrical in form, easily kept, very gentle, remarkably active in their movements, and spirit enough for all required of them. I looked upon them as the best horses we have had here. One thing is to be taken into consideration: the colts are all out of the best mares in the country. Besides this, Morock was the best made horse of his kind I ever saw."

### Mr. Fulford's Berkshires.

Mr. Fulford has been very successful this year at the Fairs. He writes us that his stock has taken the following premiums. "At the Maryland State fair, six first premiums; at York, Pennsylvania, five first and two second; at Frederick, Maryland, seven first and one second; at the Virginia State fair, one first and two second; at the North Georgia fair, Atlanta, two first and two sweepstakes; two of my animals winners at the last-mentioned place, and there sold, won first prizes at the Georgia State fair;—making a total of thirty premiums won by my exhibits. All but three of these animals were bred by me, and those three have long been used in my herd as breeders."

See his advertisement in this issue.

### The Crops in Worcester Co., Md.

Corn is being rapidly housed; the quality is good and very dry, but meagre in quantity,—not averaging more than two-thirds of a yield, so severe and protracted was the drought. For the same cause we have been prevented from getting wheat in as early as usual. I have 25 or 30 bushels to seed yet, and will finish before my last sowing last fall, which was the last of November, and made 14 to the bushel of good wheat. From this fact, and others more notable, I am satisfied that spring wheat, if well fertilized, would prove a success in Maryland, and much more lucrative than oats.

G. H.



## Horticulture.

### Orchard and Fruit Garden for Dec.

This month affords more leisure to the active orchardist and fruit-grower than he has been able to enjoy for months past,—giving ample time to read and accumulate such information as will aid and guide him in the various operations pertaining to his vocation. Where planting has not yet been finished, it can be attended to, during mild weather, when soil and air are both clear of frost, with as much success as any other time. See that the earth is well settled amongst, and firmly pressed down on, the roots; and planting can be done during any open spells of weather through the winter.

In the fruit garden, if not already attended to, the newly-planted beds of strawberries, blackberries, raspberries, currants and gooseberries should be well mulched with coarse manure; if, however, the manure is not available, straw leaves or fine fallings, spread to the depth of three or four inches around and over the plants, will be of great benefit to them during the many changes from cold to warm, and *vice versa*. Such coverings can be removed when spring arrives and freezing weather is past.

### Place for a Tree.

*Messrs. Editors American Farmer:*

Much unoccupied space may be made exceedingly profitable as well as ornamental, and almost without labor or cost, and, at the same time, rendered *permanently valuable*.

Many of our farmers adhere to their old-fashioned kitchens apart from the dwelling. These kitchens, quarters or outhouses furnish the richest of fertilizing agents, and the fertility generated and accumulated immediately around them are seldom or never utilized, and are either a total loss or they are expended in the growth of rampant weeds, furnishing harbor for injurious insects and reptiles.

Now, instead of such occupation, let the farmer, *this very fall or winter*, set one or more standard fruit trees. These trees, if properly selected, will, in a few years, attain an astonishing size, and, if an apple tree, will soon (much sooner than the owner would suppose) bear him barrels of fine apples. A tree thus situated will need little or no cultivation—only a little pruning and protection from cattle; and it will generally bear as much fruit, if an annual bearer is selected, as three or four trees in the orchard under ordinary culture.

If the *Golden Dixie*, Lady Apple, or some other sort, of upright growth, is planted, they will bear close planting, and will afford sufficient shade, and are as ornamental as most other trees. The Fall Pippin, Summer Queen and York Imperial are fine apples for such places, but the trees are spreading. The Cherry is also a very suitable tree for yards and odd places,—either the dwarfish May Duke or the magnificent Napoleon; they will flourish in any good soil without culture.

Spots thus occupied do not interfere with field or garden cultivation, and, although seemingly a small matter, in the aggregate, were the practice general, would be a large addition to the fruit crop of the country; and by such planting the health and comfort of farmers and their families would be increased almost without care or cost. J. FITZ.

*Kewick Depot, Albemarle Co., Va.*

### A Caroline Co. (Md.) Apple Tree.

*Messrs. Editors American Farmer:*

The apple crop this season in our county has been remarkably light, owing, mostly, to violent hail storms which visited this section while the fruit was yet quite small. There was in this general suffering of fruits, &c., one very conspicuous exception: A tree owned by L. T. Dukes, Esq., of this county, which stands in very good soil, produced, by actual measure, *eighty-four* bushels of apples, besides several parcels used for culinary purposes by his own and neighbors' families, that the owner of the tree kept no account of.

The tree was taken from the woods by its present owner between thirty and forty years ago, a little switch: now it is a very nice large tree, standing on the border of the straw yard; the fruit has dropped in the straw, and been covered up in this way, secured from frost, where it was found in perfect condition the following May, when the straw was removed. This information was given me by Mr. Dukes, who is a gentleman of unimpeachable veracity. It is not an annual bearer, but compensates for the missing year by the immense quantity it yields when it does bear. The fruit is medium to large, and of good quality. But, as I am hurried now, will defer description to some other time. J. W. KERR.

*Denton, Md., November, 1878.*

PROGRESS.—One evidence of agricultural progress is the numerous and well-attended farmers' meetings now held every summer in nearly all parts of the country. A decade or two ago a farmers' meeting, purely so, was a thing almost unknown. . . . One significant feature of these large outdoor meetings is, the speakers are generally farmers,—men who thoroughly understand by experience what farming is, its discouragements, hindrances, profits, and losses, and who have some idea of what is required in the work of elevating it to the position it should hold among the vocations of men. This is a healthy indication, and shows marked progress over years past, when this work was invariably delegated to professional public speakers, very often to political hacks and demagogues, who eagerly sought every such occasion to further their own selfish interests. All honor to the men and means that have aided in bringing about this encouraging result,—that have been remotely or directly instrumental in ushering in the era of thought and investigation. —*Practical Farmer.*

## Floriculture, &c.—December, 1878.

By W. D. BRACKENRIDGE, Florist and Nurseryman,  
Govanstown, Baltimore Co., Md.

It has occurred to us that true happiness of a recreative kind in our rural districts has not attained that full fruition which the nature of the elements by which people are surrounded would naturally warrant us to expect. It may be also truly said, that during bleak winter days, with their long nights, there is not much in the external world on which the senses of the blunt observer can be regaled. But within doors during the long evenings, what a precious time is afforded for the improvement of the mind, by the reading of works on natural history, geography, history of nations and travels of distinguished individuals; these, with our monthly periodicals on agriculture, horticulture, and the *fine arts*,—together with the daily and weekly newspapers, numerous and diversified in matter,—are easy to be obtained.

If the money spent in bar-rooms and grog-shops of our country was applied in the purchase of useful books, what a wonderful revolution would there be in the mental and moral condition of our rural population. Yet we do not think it necessary that a man or woman should be so much of a reader as to be dubbed a "book-worm," but he or she should at every available opportunity stow away in their minds such practical ideas and polite knowledge as may be suitable for them in their peculiar station in life; and we would advise to alternate the spells of reading by mixing now and then in with the family and friends in some innocent game; such games tend to brighten the intellect; while the males can during the day betake themselves to more manly sports in the open air, so that their physical development may be advanced.

But while these exercises of mind and body receive a proper allowance of our leisure time, the main force of thoughts and actions should be turned to rural improvements, such as the making of roads, pruning of trees, collecting such materials as leaves, vegetable mould, swamp muck and earth from high head-lands, all of which should be laid up in a pile, and frequently turned over. In doing this add one load of stable manure to every five loads of earth. This compost when well mellowed is just the very thing for flower-beds and in planting out of trees and shrubs.

In one thing we have observed lately a vast improvement in our rural districts; that is, in the farmers decorating their grounds by plantations of trees, shrubs and flowers, thereby adding elegance to and making their homes more attractive; and we think this is taking one step in advance towards a higher state of civilization and refinement; yet we know men who are worth over half a million of dollars that have built themselves costly dwellings that are left standing as solitary on plain or hill as does the stork on the bare wall,—not a single tree to brighten up the scene, or shade or shelter him and his house from the bleak northwest winds and scorching rays of a summer sun. Now this state of things has a tendency to make people go in quest of some cool shady locality in sum-

mer which they could have had at home by the expenditure of a small sum on the planting, and this small sum so expended will in a few years double itself in the extra value it gives the property.

In the protection during winter of young Evergreens and plants deemed rather tender, it is only necessary to cover the surface of the ground around them with a layer of leaves three to four inches thick; and to keep this from getting blown away, use a sprinkling of long stable manure, the tops to be protected by the spray of pine or cedar, and if these are not to be had, then use straw; but we prefer pine or cedar branches stuck in all round and tied together at the top; a very thick covering is not necessary, all that is wanted is to shade the top from the rays of the sun so as to prevent evaporation while the plant is in a dormant state.

A proper work, and one to be attended to at once, is to rake up all leaves, and clear away stems of decayed bedding-out plants and annuals also. We prefer leaving on the tops of such herbaceous plants as Pæonias, Iris and Hemerocallis until spring, as these afford protection from severe frosts; this may be termed a slovenly practice, but it is safe practice, and we have nature on our side.

Should the weather continue mild, the work of planting shade trees and deciduous shrubs may still be done. We have performed this kind of work frequently as late as Christmas with perfect success; in fact, shade trees can be transplanted during any of the winter months—weather permitting. An important item in this kind of work is to have the earth friable; never use it when wet.

### Greenhouse.

Every good cultivator will examine the collection under his charge at least twice every week, in order, first to collect all decayed leaves, and then to see that nothing is suffering from rot, want of room, or a better position. All these it may be said are small matters, but they are just such as are too often neglected, to the detriment and destruction of costly plants.

A very important item in plant culture is to have stored away in bins, under cover, a good supply of various kinds of earths, sand and well rotted manure, so that it may always be in condition, ready for use.

It may appear to the uninitiated as not being a very difficult task to take care of a greenhouse where the collection of plants is of a mixed character, natives of tropical and temperate climes. We know this much, that it is a simple affair to supply water to all kinds of plants indiscriminately, also to put on fires in order to keep up the temperature to a certain degree, as well as to give air when required. To drive such a machine may appear at first sight but a simple matter, but we fear not always a successful one, and this want of success is often to be traced to the lack of knowledge on the part of the one in charge of the requirements of individual tribes and species. For instance, if he has Bouganvilleas, Clerodendrons, Allamandas and Stephanotus floribunda, that have been grown and bloomed during the summer, these should now have water withheld by degrees



from the roots, and after a short while stored away in a dry temperate part of the house, there to remain until next spring; but not to excite them by heat and water when they should be enjoying a rest,—that is, if you desire a rich bloom on them next year.

The same withdrawing of water should be practiced with Gloxinias, Achimenes, Gesnerias and Caladiums—only the tubers of the last named require to be kept in a higher temperature when dormant. But there are exceptional species to this rule in some of the genera named above, that will grow and bloom in winter in a moderate heat, as *Gesneria zebrina* and its hybrids; this last and such as *Poinsettias*, *Euphorbia Jacquiniflora*, *Gardenias*, *Ixoras* and *Crotons*, ought to be placed in the warmest and lightest place to be found; while *Cinerarias*, *Calceolarias*, *Geraniums*, *Chorozemias*, *Camellias* and *Azaleas* will thrive in a temperature ranging from 45 to 60 degrees, therefore these more hardy things should be kept towards the cold end of the building, where any air required should be given.

Tulips, Hyacinths, *Polyanthus narcissus*, Jonquills, *Crocus* and *Snowdrops*, potted in early fall may be removed, say a few at a time, into the house; but none of them force good until the rootlets have well filled the pots. Seeds of *Mignonette*, *Whitavia gloxinoides*, sown now, will bloom in late spring, and cuttings that have made roots should be placed in small pots—singly or in threes, as the nature of the kinds may indicate.

#### A Window Hood for Ornamental Vines.

A lady correspondent sends the *Gardener's Monthly* a sketch of a wire frame which she has found very effective in training the Virginia Creeper over the window. She says: It is an idea of my husband's, and has been so attractive



here that I thought some of your readers might like to try the experiment. Our wire window hoods are now closely covered with foliage and long tendrils, drooping as low as the window sills, making a lovely shade in sunny weather and giving a softened light in the rooms. I will send you by mail some stereoscopic views showing the effect on the house. I also send a photograph of our front porch, which I fancy you will en-

joy, from the lovely effect of light and shade among the vines. Looking directly through the house you have a view of my pretty lake, seen through the drooping tendrils of vines trained on the back piazza. I know of no more exquisite decoration for a country home than these graceful vines.

#### December Floriculture.

The present is a good time in this section to attend to transplanting roses, evergreens, hardy deciduous shrubs, &c., and to a general clearing of unsightly objects, dead flowers, &c., from the flower-garden.

Late as is the season (Nov. 16th) we have had little killing weather,—none sufficient to kill *Mignonette*, *Sweet Allyssum*, *Petunias*, and others of a like degree of hardiness, no matter in what exposed position they are growing; and even in protected places under shrubbery, *Cacalia*, *Salvia* and *Ageratum*, -till live, showing no change under the siege of noiseless Jack Frost.

From the field of beauty I miss the bright blooms of *Zinnia*, *Balsam*, *Mirabilis*, and a host of others; and the graceful climber *Cypress vine* has long since been counted among those that have been and fulfilled its mission.

The only things now in bloom are *Mignonette*, *Chrysanthemums* and *Sweet Allyssum*, the latter the most attractive plant in the entire flower-garden. A few scattering blossoms of *Dianthus* of the *Chinensis* variety are still to be seen; and the *Penstemons* still produce a few bells, which, however inferior they appear in summer, when everything else is in bloom, at this time appear quite beautiful. Now and then some rose-bud, resisting the chill breath of approaching winter, unfolds its petals, to receive more than a passing glance of admiration.

The above are all of the many bright gems that in the season now past enlivened our yards with beauty. The next thing in order is the clearing away of the dead bushes. The best thing to do with them is to have a compost pile to which they can be carried, as they form an excellent soil for pot plants.

Spade up all places intended to receive flowering plants in the spring, and leave the soil in a rough condition to the action of the frost, as freezing pulverizes it and leaves it in a condition which exactly suits the plants.

It is to be supposed that all hardy bulbs have been planted when this is published, but if not they can still be planted out, observing to protect the beds with a good covering of straw or coarse manure, which in the spring should be removed, not all at once, but gradually, so as to accustom the plants to the change.

Warwick Co., Nov. 16th, 1878. W. G. IVY.

#### Margel Wurtzels.

Col. F. B. Steiner has brought us some specimens of these roots grown on his farm in Anne Arundel Co., Md., some of which weigh 16 pounds, and of which 1,474 bushels were raised on 1½ acres, or nearly 30 tons to the acre, at a cost of but 4 cents per bushel!

### Vegetables—Fruits—Flowers,

The indispensable, the useful, the beautiful.—This was the order insisted on by the gardeners of a past generation, but emphatically reversed in ours. Until within a recent period most of our gardeners hailed from the old world, and their memories led them back to the gardens of the rich, with their sheltering walls, their handsome walks and regular “brakes” of vegetables, bordered perhaps with fruit-trees *en espalier*, and with flowers,—a sight not soon to be forgotten. Vegetables grown under such circumstances possess an interest scarcely second to the productions of the flower garden, and the gardener takes a just pride in raising crops worthy of their surroundings. Our rough but economical and effective mode of gardening, in which the plow and harrow take the place of the spade and rake, has stripped the vegetable department of much of its old-time association and interest. But still, there will always be found some, who, like myself, are admirers of good vegetables however or wherever grown, and who hope to see an awakening interest in the subject, indicated by more frequent contributions to the *American Farmer*. There is no lack of topics. Some of us are thirsting for hints and directions which some of your experienced readers could readily supply. Our market gardeners could give us some valuable items connected with their calling, and so could those who grow a regular succession of crops for private families or public institutions. Let us compare notes and see if we cannot improve our own and our neighbors' practice by so doing. Let us tell, too, of our failures,—for it is not always smooth sailing even with the best of us.

There has been little in my charge during the past season worthy of note. Through a misapprehension as to my allowance of help, I put in greater crops than I was able to take care of; so that by midsummer my land was overwhelmed with weeds. More than one person kindly reminded me that I had “struck the weed year,” that everybody else was in the same fix, and that there was no help for it.

It would seem, then, that “the weed year,” with people who reason in this way, was a something to be dreaded; whereas a season of sunshine and shower, which is only another way of putting it, ought to be generally welcomed. The remedy, in my case, is to cultivate less land; the true remedy, with those who are their own masters, is to hire more help during that much-to-be-desired season, *the weed year*.

Notwithstanding the above drawback, some excellent results were obtained from such crops as had proper attention. Onions from seed, thinned four to six inches apart in the row, touched each other by the middle of July. One small piece of ground 83 by 11 yards, drained last fall, and heavily manured in spring, gave nearly 3,000 early cabbages and cauliflower, as many more lettuce between the rows, 34,000 pickles later in the season, and is now covered with a fine growth of German greens. Turnips are large and fine this season, especially those sown in rows and thinned.

Will some of your readers who keep their

celery in narrow trenches, please tell us how they succeeded during the past mild winter?

The old-fashioned mode of raising celery in beds is still much in vogue around Baltimore, and some contend that all things considered it is the best for this latitude. With a little further trial of new modes, there would be no harm in discussing this point.

Baltimore Co., Md.

JOHN WATSON.

### Home Department.

#### Kitchen Arrangements.

*Messrs. Editors American Farmer :*

It is sincerely to be hoped that we are not as unmindful of the kitchen in our houses as the neglect of them in the “Home Department” would indicate; certainly for presumably fair housewives we have avoided the subject most unaccountably. The arbitrary rulings of polite society upon this subject can hardly be binding upon us here. Be that as it may, however, I will hope for indulgence while I devote to this most important department of the home bureau a few practical hints.

The majority of country kitchens are also, I am sorry to say, the eating-rooms of the family, especially where no servant is kept; where the necessity for such an arrangement exists there is the greater demand for ingenuity and care in order that its twofold character may not spoil it for either purpose. Many years ago there was an article published in *Harper's Monthly* in which there were plans and suggestions so admirably adapted to this condition of things that I am surprised never to have seen them adopted; a republication of them in this practical age would, I feel certain, meet with more appreciation. Those who have access to the volumes, the magazine of '64 or '65, will there find the article alluded to; but for the benefit of those not so favored I will endeavor to explain. The idea was to cut off a stove chamber from the side of the kitchen in such a way as to hide the stove completely, or by opening the sliding doors which formed the three sides of this chamber leave it as much a part of the kitchen furniture as ever. By placing a ventilator in the chimney above the stove any smoke or fumes arising from it would be readily carried off. The doors could be kept closed during the operation of cooking or while the room was used for an eating-room. If space enough were allowable the enclosure could be made to contain closets for all cooking utensils and a sink for waste water; this would economize labor and admit of the rest of the kitchen being more suitably arranged for a dining-room. If the enclosure included a window it would be all the better; but there is no absolute need for it if the room itself is well lighted.

The windows in all kitchens should always be fixed so that they can be lowered from the top; if too late to have them hung by weights in double casings, they can still be so arranged as to let them down for a few inches on some simple wooden button. The kitchen or bed-room should never be without this most effectual means of ventilation. I had almost rather the

lower sash should be permanent than the upper one.

Another convenience, which is not as often provided for as it should be, is that of having a separate room for washing and ironing. It is not nice to have the soiled clothing brought into the same room where cooking is done, and much less so to have the steam of the suds in which they are washed and boiled filling every part of the room so that it must needs mingle with all the food prepared there. On the other hand, the smoke and odors arising from the process of cooking are equally undesirable where sweet clean clothes are wanted. These would seem sufficient reasons even where the washing is done by one of the household, whether servant or not. When a washerwoman is had from outside it is of still more importance. It is not pleasant if you are cooking yourself to have a person of that class watching you. If you have a cook there, the cook and washerwoman interrupt each other, sometimes in good nature, and oftener otherwise. There is no end to the trouble which is brought into a house by this means. If economy of fuel is an object it can be partly met by keeping the kitchen fire low while the cooking is not being done. A room, with conveniences for washing and ironing permanently fixed, should be reckoned among the necessities of every house. It need not be large or expensively gotten up, but do let it be comfortable in all weathers,—remembering always that the health of the working people is all they have to depend upon; if it becomes impaired they have neither time nor money to devote to its restoration.

A wash-room will also afford a very suitable place, unless one for the express purpose is provided, to have the workmen, go to prepare for their meals, washing and combing their hair, &c., a performance which should never be suffered in the kitchen.

Conveniences for water and fuel are of the utmost importance, and the man who neglects these is so blind to the best interests of his family that I give him up for a hopeless case. The kitchen is to the house as the stomach to the man; unless properly cared for chronic disorder is the result.

CERES.

### Recipes Suited to the Season.

**RICH MINCE MEAT.**—Boil a large tongue that has lain in salt not more than one or two days; when cold, mince it very fine, after removing the skin and all unnecessary fat which surround it. Chop 2 lbs. of suet very finely, also 6 lbs. of the best apples; prepare 4 lbs. of raisins and the same of currants; mix all these together, and add the juice and rind of 4 fresh lemons, 4 grated nutmegs, 2 teaspoonfuls of cloves, and a few blades of mace, 1½ lbs. of white sugar, and a pound of citron cut in slips, (1 lb. of sweet almonds, blanched, and pounded in a gill of rose-water, is a fine addition.) Mix all these and moisten with 3 pints port wine or brandy. This should be closely packed and tightly covered. It will keep excellently all winter.

**COCOANUT PIE.**—One large cocoanut grated fine, a tablespoonful of rose-water, a teaspoon-

ful of brandy, the whites of five eggs beaten to a froth, ½ lb. of loaf sugar, ½ lb. butter creamed; mix all together and bake in a quick oven. Bake without cover.

**LEMON PIES (RICH.)**—Pare carefully the yellow rind from 2 lemons; then remove the thick white substance which grows next the rind, it being a very indigestible and useless article; then squeeze the juice into a bowl and remove the seeds; chop the rind and the remainder of the lemons very fine and add to the juice. Add also, 2 well-beaten eggs and 2 slightly heaping cups of sugar, mix well, line a plate with a rich crust, with several layers of crust around the edge, which may be made to adhere to each other by the use of a little water. Bake without a cover.

**PLAIN PLUM PUDDING.**—1 cup chopped raisins, 1 cup currants, ½ cup chopped suet, ½ cup molasses, ½ cup sugar, 3 scant cups flour, 1 cup milk, 1 teaspoonful soda dissolved with 1 teaspoonful salt. Grease the tin well, and set in a kettle of boiling water and let boil three hours.

**SAUCE FOR THE ABOVE.**—½ gill wine, ½ gill rose-water, ½ pound sugar, butter size of an egg, ½ nutmeg; set in the top of the tea-kettle after beating all well together, and stir 15 minutes.

**FRUIT CAKE.**—3 cups molasses, 2 of brown sugar, 2 of butter, 1 of milk, 5 of flour, 5 eggs, 1 teaspoonful saleratus; cut up the butter in the milk; warm the molasses; stir it into the milk and butter; then stir in the sugar and let it cool; then add the eggs well beaten, 1 pound raisins, 1 of currants, ½ pound citron. Bake in a slow oven.

**CUP CAKE.**—5 cups flour, 1 cup treacle, 1 cup cream, 1 cup sugar, 3 cups currants, 3 cups raisins, ½ pound candied peel, 4 eggs well beaten, 1 teaspoonful carb. of soda, 1 cup melted butter, and spices to taste. It will require four hours baking in a moderate oven.

**TO ROAST A TURKEY.**—After thoroughly cleaning and singeing with a lighted newspaper, prepare a stuffing of pounded cracker, salt, pepper, butter, white of eggs, sage and sweet margarine; fill the turkey and sew it up tightly; rub it with salt and flour; pour half a pint of water into the pan; put in the turkey, and let it roast gradually at first. The wings and legs should be tied down tightly to the body. A large turkey, of twelve or fourteen pounds, will require four hours gentle roasting and constant basting with flour and water. Boil the heart, liver and gizzard in a little water till tender; mash the liver and slice thin the heart and gizzard; add all these to the gravy in the saucepan; thicken a little with flour and season with salt and pepper. Serve with cranberry jelly and oyster sauce.

The above recipes are excellent, suitable for Christmas times, being selected and original, and have all been thoroughly tested by the undersigned.

Mrs. T. A. H.

Fairlee, Kent Co., Md., Nov. 20, 1878.

Some articles received for this department are crowded out this month for want of space. We renew the request to our lady readers to favor us with their contributions to these pages, on topics pertaining to home interests.

### Domestic Recipes.

**DRESSING FOR CABBAGE.**—To one head of cabbage, take 1 pint of vinegar, and when near boiling remove from the fire, and add to it 1 tablespoon of mixed mustard, (French is best,)  $\frac{1}{2}$  tablespoon of black pepper, 1 tablespoon of salt,  $\frac{1}{2}$  cup of melted butter and 2 eggs well beaten. The cabbage is nicest when cut on a cabbage-cutter into thin shreds; if you haven't one of these it can be done with a very sharp knife and patience; but do not *chop* fine,—it spoils the looks of the dish. Pour the dressing over, either hot or cold, as you prefer; it is nice either way. C.

**CARAMELS.**— $1\frac{1}{2}$  lbs. white sugar,  $\frac{1}{2}$  lb. chocolate, dessert-spoon extract vanilla,  $\frac{1}{2}$  of a tumbler of milk and tablespoon of butter. Place over a brisk fire and boil about twenty minutes, stirring constantly. When sufficiently cooked pour into large flat dishes, making the thickness of them a little less than half an inch. When partly cold pass the knife across each way, marking the mixture in inch squares, in order to have them break regularly when cold.

**CARAMELS No. 2.**—2 cups white sugar,  $\frac{1}{2}$  cup hot water, 1 teaspoon cream tartar; boil until it candies. When sufficiently cooled make into little round balls. Melt  $\frac{1}{2}$  of a cake of sweet chocolate in a bowl set in the top of a tea kettle, add to this a teaspoonful of vanilla extract; dip each ball separately into this and lay on a dish over night. C.

### The Practicability of Improving our Agriculture.

[Read before the Baltimore County (Md.) Farmers' Club, by Nicholas T. Hutchins.]

To those who can carry back their recollections twenty or thirty years, the improvements which in that time have been made in the mechanical and manufacturing arts will appear surprising.

Whence these great and recent improvements in our sister arts? They are not owing to the diminished price of labor, for that has increased; nor is it to a reduction in the price of provisions. They have been brought about by the diffusion of useful knowledge, and the consequent development of the powers of the mind. The mind has been put in requisition, as well as the physical power, and these changes have in some measure been affected by a more systematic arrangement of business—by a division of labor—and by a general and rapid dissemination, by means of the press, of a knowledge of the improvements which are every day being made in those useful arts of labor.

Let us now turn to agriculture, the parent of all arts, the source of our purest and most substantial enjoyments, the basis of our national prosperity and independence. This is as susceptible of improvement as the other arts of labor; but what progress in its improvement has been made during the last thirty years? Our labors have been abridged by the general introduction of improved labor-saving implements of husbandry, and our lands have increased in fertility and in the amount of their products; but has the diffusion of useful knowledge in the business of husbandry been as extensive as it has in the manufacturing and

the mechanic arts? Have enterprise, intelligence and improvement in rural affairs kept pace with the spirit of the age?

I fear that it will be found on an impartial investigation that, while all the other arts of labor have with rapid strides been progressing onward, our farmers have too generally been taking a long slumber; that with the natural means of improvement, and all the common incentives to employ them, they have been too listlessly treading in the footsteps of their fathers, and have been unmindful of the salutary changes which are enlightening and enriching those engaged in other branches of labor.

The progress of improvement in husbandry will be graduated in a measure by the degree of intelligence which directs its labors. The first step to improvement is to acquire a better knowledge of our business; the second to apply this knowledge to the management of our farms. He that is conscious he *can* improve, and resolves that he *will*, most surely succeeds. The means of improving will readily present themselves to his mind. Agricultural journals will afford him a ready and cheap means of instruction. They chronicle and bring to him periodically, at trifling expense, the improvements that are continually being made in the business by which he lives and expects to acquire wealth for himself and family. They explain to him the operation of manures as essential to the growth and perfection of his crops, and enlighten him in the means of augmenting and applying them in the most economical manner. They bring to his knowledge every improvement and invention in the labor-saving implements of the farm. They treat of the comparative value of different breeds of farm stock. They abound in instructions in household economy, and show that under judicious management the garden and the farm may be made to produce most of the necessities and many of the luxuries of life. The example of every good farmer produces a beneficial influence upon those around him, who, seeing his approved modes of management and the advantages resulting from them, will not fail to adopt them. When the harvest is short, every department of business feels the electric shock. When it is abundant, a new and happy impulse is given to every sort of business.

Allow me to add that it embraces a better economy in, and a more general application of, manures; the introduction of improved labor-saving machines and implements; the improvement of farm stock; the exclusion of impure seeds; the alternation of crops; where practicable, the improvement of our common roads; the introduction of system into all the departments of farm and household labor; the cultivation of as much land only as can be cultivated well; and the keeping of as much farm stock only as can be profitably fed and fattened, and no more. All these improvements can be made, and will be made, by the intelligence, enterprise and the laudable competition which the farmers will diffuse and call into action, if their labors are persevered in.

Agriculture is a complex art. The wisest, the most persevering, the most skillful and the most experienced man will find ample scope for all his energies.



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By SAM'L. SANDS & SON,

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SAM'L. SANDS, { Editors and Publishers.  
WM. B. SANDS, }

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Advertisements should reach us by the 27th of the month, to secure insertion in the succeeding issue.

BALTIMORE, DECEMBER 1, 1878.

## The Close of the Volume.

As appropriate and usual at this time, we devote the final words of the volume to an expression of our thanks to the friends of the *American Farmer* who have helped it to what success it may have met during the year, whether as contributors to its pages or as helpers in the (to us) equally necessary work of extending its circulation.

It is with some pride we look back upon the volume now brought to a period, with its many practical suggestions, its useful treatises, and its record of improvements compassed. A large number of correspondents scattered over a wide territory, and of diverse and ample experience, have enriched it with reports of their practice and observation. Many fields have been garnered for the benefit of our readers, and the editorial direction has sought to give the latest phases of improvement, and to present to every interest and taste something useful in each issue.

In the year to come we hope to have continued assistance of these co-laborers in behalf of agricultural enlightenment and advancement, and, besides them, other capable hands will lend their aid.

For ourselves, we make no promises. Whilst we acknowledge that each number falls short of the ideal we form of what it should be, an intelligent, progressive and appreciative constituency,

which is constantly enlarging notwithstanding the dullness of the times and the scarcity of money, is an assurance how our efforts in its service are estimated.

We submit now to our friends and readers whether it is not due to us, whether it is not equally due to themselves, and, indeed, to their neighbors and friends, that at this season an effective and earnest effort should be made for the enlargement of our subscription list in every community where literature of the kind which the *Farmer* offers is esteemed by intelligent husbandmen and their families.

## The New Volume

Begins with the January No., and we urge upon our present subscribers and those who form clubs to renew their subscriptions and forward the names as early as practicable. Not a reader now of our journal but could, in renewing for the next volume, send a new name with his own, and, if its claims were presented to his associates around him, form a club of greater or less extent. The usefulness of the paper cannot but be enhanced by every addition to its list of wide-awake and interested agriculturists.

Our terms for 1879 will be as announced heretofore: Single subscription, \$1.50; clubs of five, \$5; to any person sending ten names and \$10 an extra copy will be sent free.

New subscribers coming in before December 31 will be given three numbers of 1878 free. Please mention this to your friends.

Remit when practicable by postal money-order or by registered letter. Where fractions of dollars are to be sent, postage stamps will answer.

## Bound Volumes of the Farmer.

We can supply the *Farmer* for 1878, neatly bound, at \$2.25 by mail, postage paid, or \$2 delivered at this office. We have also a few volumes for '76 and '77 on hand at the same price.

We invite attention to the advertisement of Messrs. GRIFFITH & TURNER, who offer a general assortment of farm machines and implements. They offer the Oliver Chilled Plow, which for perfection of work, light draft, ease of management and unequalled scouring and non-choking qualities, they claim to be the superior of any now on the market, and which claim they back up by their warranty. Others of their specialties are the Maryland Hay and Fodder Cutter, Fodder Dessicators, Corn Shellers, Steel-Barb Fence Wire, &c., besides the usual variety of tools, seeds, &c.

The firm of DORSEY, MOORE & Co., though a new one, is, as we are glad to learn, making its way into a handsome trade, and its energy and tact inspire it to *make* business without waiting for it to come to them. A proof of this is their liberal use of printer's ink, an example of which is seen in our present number. Happening into their warehouse a few days ago we were shown an inquiry for their goods from Austria, and another from our antipodes in China, which, with others, had just come in.

In beginning business they were fortunate in securing the control of some first-class machines, whose reputation enabled them to push their sales with confidence and success. One of these is Montgomery's Wheat Fan, which we have known in the hands of the original inventor, by whom it is still made, for twenty-five years. It has justly gained great celebrity, and Mr. Montgomery is still studying to improve it,—having within a few months, as he informs us, contrived a new device which adds much to its former efficiency. Its history is a series of improvements, and its success at the shows unprecedented. Since 1853 it has gained at every State Fair held in Maryland and Virginia and at the Maryland Institute in this city the highest prizes given, and at the Institute's fair this year it was awarded the gold medal, which by the regulations could only be given by an unanimous vote to machines which are adjudged so important as to make a decided advance and great improvement.

Another of their specialties is the Big Giant Corn and Cob Mill, a new machine much superior to the old mills so long put on the market. This one has gained the highest premiums in every instance where exhibited, as we are informed, except in one instance. Another mill is claimed to have received the prize at the Raleigh (N. C.) Fair, but Messrs. Dorsey, Moore & Co. have shown to us the silver medal and diploma, the award (the highest) made to *their* mill.

The Studebaker Wagon, the Daniels Straw and Fodder Cutters, and a number of other articles of proved merit, are handled by this firm exclusively in Baltimore, who, besides, keep a general assortment of farm tools and implements, seeds, &c.

*The Maryland Farmer* exhibits chronic discontent with our conduct of this journal. A periodical of limited circulation and influence, the methods by which it lives, the purposes it serves, and its history, to which it is not necessary *now* to refer, are such that its positions on most questions merit slight attention, and, as our readers know, have rarely received any from us.

An attack in its last issue upon an Essay in our October No., by an old and esteemed correspondent, reprinted after a long interval from its original publication, seems, however, to

require brief notice. The "associate editor" thinks the paper "long since lost any value whatever," because within ten days after its first appearance, "a writer" showed that "if not a plagiarism, it was full brother to such a respectable party." An old letter is given showing some similarity of language between the Essay and one published in 1801.

The Essay was not intended as a literary performance. Its author presented a practical paper, embodying his own experience, and if, in relating it, he employed language similar or identical to that used fifty years before in a pamphlet long public property, to which he had probably often referred, certainly practiced upon, and perhaps had before him as he wrote, it detracted nothing from what was an useful performance, and received the highest approval of a committee of competent and disinterested judges.

But the animus of this editor of the *Maryland Farmer*, as well as his taste, may be judged from the facts which he omits to state, and which we supply, that any who happen to see his ill-mannered allusions may correctly value his words. The letter which he now reproduces and credits to "a writer" was originally *written by himself*; he competed himself for the prizes offered; and of the four essays in competition, *his was the only one* not awarded a prize!

It is probable, therefore, and perhaps natural, that "in our [his] opinion" the essays, whose merits left his entirely out of sight, should have "long since lost any value whatever;" but if he thought it necessary and proper to so declare, it would have been more manly to do it with more directness, no parade of anonymous letters, and with less lack of courtesy. There are other circumstances, too, which, so far as the editor's principal is concerned, make this uncalculated attack on this aged veteran in the cause of agriculture the more unwarranted and inexcusable.

A charge of plagiarism comes, besides, with ill grace from the veracious chronicler whose history (save the mark!) is drawn entirely from *our* writings and *our* record in the old volumes of the *American Farmer*, save when the facts as there narrated, would not suit certain purposes, or (though "to eulogize the living would look like time-serving,") gratify the ambition of his chief to figure conspicuously in the events pretended to be related. Then his imagination replaces that unimpeachable record.

From it he draws, without credit, even the description of his principal's trade exhibit at

the first State Fair, and only leaves its safe guidance when bidden to perpetrate some unwarranted puffery of that individual or his wares at the expense of his then cotemporaries in the same line—this in truth seeming to be the principal aim and only reason for being of this so-called agricultural journal.

### The Baltimore Co. (Md.) Agricultural Society.

The board of managers of this new association organized at its first meeting by electing the following officers: Samuel Brady, president; Daniel Jenifer, treasurer; Wm. B. Sands, secretary. It was determined to proceed immediately to secure as many subscriptions as practicable to the capital stock of the society, and to invite persons who had lands suitable to its uses to make tenders of the same. Considerable stock has been taken and a number of tracts of land offered for sale or lease for the fair grounds.

### The Annual Session of the National Grange.

The twelfth annual session of this body was held in Richmond, Va., beginning on the 20th ultimo, when thirty States were represented.—After the opening of the Grange, Dr. J. M. Blanton, Master of Virginia State Grange, delivered an eloquent address of welcome, and in the evening there was a public reception of the Grange in the capital, when addresses were made by Gov. Holliday, Col. Wm. Lamb, George W. Koener, and appropriate responses by Mr. Adams, Master of the National Grange; Dudley P. Chase, Master of the N. H. State Grange, and D. Wyatt Aiken, of S. C., one of the Executive Committee of the National Grange.

On the second day the usual committees were appointed, and a large number of resolutions, petitions, &c., presented and referred.

The Master, in his address, argued against the action of the Executive Committee in allowing the Secretary to locate his office at such place as may be most convenient to him, and in favor of the Order having a local habitation—a home. He said of the funds which have come into the treasury of the National Grange about \$100,000 has been returned to the several States in the forms of loan-donations and for the adjustment of dues and charitable purposes. The plan adopted of returning one-half of the fees for new granges, formed has not been a success. "If we would hope for deeper root and more permanent growth, we must water better and tend more faithfully the plants we already have."

Coöperation—the business aim of the Order—and the desirability of making the grange interesting and instructive to the youth of the land, received due notice, as did the necessity of "Granges availing themselves of reading-matter, striving to educate and inform themselves upon subjects connected with agricultural pursuits and the current events of the day."

He suggested: 1. A short and inexpensive session; 2. The maturing of a plan to revive

dormant granges; 3. Close regard to the stability of the Order in proposed changes in its law, ritual, regalia, &c.; 4. As few alterations as possible in the compendium of ceremonies, digest of decisions, &c., as now published; 5. Every semblance of infringement of the fundamental law against the discussion of religious and political questions, &c., to be avoided; 6. The doctrines in the Declaration of Purposes to be regarded as immovable landmarks; 7. The resolution to uphold the unity of government and against all geographical discriminations and sectional and special privileges.

The Treasurer's report showed a balance on hand of \$4,618.33.

On the third day the petition from the Maryland State Grange to make the minimum price of admission absolute instead of discretionary with the subordinate grange was rejected unanimously.

The report of the secretary showed there were 69 new Granges formed during the year ending September 30.

O. H. Kelly, secretary of the National Grange since its formation, resigned that office, and Wm. M. Ireland, of Washington, D. C., was elected in his place, and his salary fixed at \$800, and \$200 for office rent and necessary travelling expenses.

The committee on Dormant Granges recommended all past-due fees be remitted to revived Dormant Granges. Approved. The question

**How Can the Grange be Made More Useful?** elicited a lively discussion.

Mr. Ware, Master Mass. State Grange, said in his State they found it difficult to get members to combine their orders so as to reap their advantages of arrangements with wholesale dealers. Another trouble was the want of an organ by which the members in the most remote portions of the country may know what is going on throughout the Order elsewhere. This would make a greater *home-feeling* amongst the scattered members—more of the brotherhood amongst them. This, he knew, would revive many languishing Granges.

W. M. Sherwin believed that want of coöperation was the great need of the Grange, without which it must cease to exist in his State at least.

Mr. Angel, of Massachusetts, a visiting member, spoke of the great advantage of an organ for the Grange. Suppose that once a month a paper should be placed in the hands of every member—what a power it would be? It is in the power of the Grangers to say to day that none but honest men should have office.

W. M. Wilson, of Florida, wanted a closer system of coöperation among the members over all the country. He, too, advocated the publication of a Grange paper.

W. M. Piollet, of Pennsylvania, spoke of the great necessity of agricultural papers. He did not care for a Grange organ such as had been described. There were a plenty of papers published in that interest if the farmer would only sustain and read them. Such journals may be found in nearly every State in the Union.

W. M. Shipley, of Oregon, fully and heartily agreed with the views of the last speaker in regard to agricultural papers. Business enter-

prises amongst the members of the Grange in his State had failed, and had caused disaffection amongst the members and a consequent falling away from the Order. Still it was alive, and had done and was still doing good, had saved the farmers of that State \$600,000.

W. M. Ellis, of Ohio, said the way to answer the question was for each brother and sister, when they go home, to work as if their whole heart and soul was in the work.

W. M. Alexander, of North Carolina, stated that the best grange in his State was one which put their dues high, and the accumulated fund was loaned out by the trustees to its members for farming operations, and great good had thereby been accomplished.

W. M. Wayne, of New York, compared the Grange with other interests, and said that the comparison was most favorable. Although they had lost members they are gaining others of a better class. He believed that the membership in his State would be doubled in the next three years. They had tried fiscal agencies, but owing to repeated failures the Patrons had become discouraged.

W. L. Whitehead, of New Jersey, spoke of the benefits and need of co-operation, but it should begin in the subordinate Grange. More Granges' halls have been built in the last six months than in all its history before.

W. M. Lipscomb, of South Carolina, thought this Grange was the place to commence the work, and each one should render himself or herself perfectly familiar with

#### THE OBJECTS AND PRINCIPLES OF THE ORDER.

Let every member know that there is work for him to do in the Grange; that he has promised, and it is due that he should do it. Make the Grange a school-house for the farmer, and teach all of us new education in our work. Teach your boys to work—to stay on the farm. Don't think that the "fool in the family" is the only one fit for the farmer. Make your Grange interesting.

It was resolved to ask Congress to establish the Department of Agriculture as a cabinet office of the Government; and for the passage of a law requiring more humanity in the transportation of live-stock.

The delegate to the Dominion Grange of Canada reported the most fraternal relations had been established with that body. The Committee on Constitution reported an amendment making the minimum dues on subordinate granges *five* instead of *ten* cents per month. Representation in State Granges was allowed to be fixed by the State Granges themselves.

Mr. Wm. Saunders, the first Master of the National Grange, presented a letter from the U. S. Commissioner of Agriculture, asking that more intimate relations be entered into between the Patrons and his Department, and deputing Mr. S. to represent the Department in this meeting.

The Committee on the Good of the Order report against the purchase of a place for the Grange meetings and Secretary's office.

The members of the grange, on the invitation of Churchland Grange, paid a visit to Norfolk

and the surrounding country, including many points of historical interest, &c.

The report of the committee on coöperation was adopted, favoring the organization of coöperative associations; the establishment of inter-State agencies, and coöperative associations of the several States; and the Executive Committee was instructed to send to the States a circular-letter, embracing the true principles of coöperation, with rules for such stores, &c., to keep the matter before the membership.

Henley James was reelected a member of the Executive Committee.

The grange unanimously resolved to ask Congress to repeal the tax on tobacco and adjourned on the 30th, to meet next year at Canandaigua, N. Y. after re-affirming the principles set forth in the declaration of principles.

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Chew Jackson's Best Sweet Navy Tobacco.



### To Our Friends in the Granges.

We shall be glad to have the officers and members of the granges throughout Maryland give us reports from time to time of such matters as will have an interest for the Order and the farming community generally in the State. We are about entering the season of annual elections, installations and public meetings, when much that occurs in the proceedings, the addresses, &c.—is worthy of being laid before a larger audience than that actually present on such occasions. We will willingly give as much space as possible to these topics, and as the *American Farmer* is not only the sole agricultural periodical in the State which is published without having for its object the furtherance of private ends and business enterprises, but absolutely the only one, agricultural or secular, which serves in any way as a means of communication between the various divisions of the Order in the State, as a chronicler of their doings, and an exponent of the correct principles underlying, and the objects sought to be accomplished by, the Grange organization, we hope its friends will not only furnish us the material to enlarge and make more interesting this department of our journal, but that they will exert themselves to extend its circulation and usefulness in their respective granges and vicinities. This service will be mutually advantageous, as we believe, to both sides.

### Encouraging Words for the "Farmer."

If our present readers would occasionally look around them, and, noting their intelligent farming neighbors who do not subscribe to the *American Farmer*, introduce it to their attention, we have no doubt its circulation and usefulness would be increased, whilst we hope they would have the thanks of their friends, as we know they would be entitled to ours. Witness the following from a young farmer of South Carolina, who, like many others, did not know of our journal until it was brought to his notice by a neighbor:

*Editors American Farmer:*

The editor of the "*Marlboro Planter*," published at our county-seat, handed me a copy of the *American Farmer*, the September No., the first copy I had ever seen. I am a young man, and a young farmer, and am rather an enthusiast on the subject of good agricultural literature, therefore you will pardon the liberty I have taken of getting up a club of five new subscribers for 1879, for which find inclosed \$5, and send our Nov. and Dec. Nos. for '78. J. F. B.

[Since the above was put in type, we have received another letter of the same import from the same State, which we also annex:]

BENNETTSVILLE, S. C.

*Messrs. Sam'l Sands & Son:*

I have recently perused a copy of the *American Farmer* published by you, and it occurred to me that I might benefit the community as well as myself by enlarging its circulation. Accordingly made an effort and with little trouble procured twelve names, which I forward to you with draft on New York for \$12. Yours truly,  
J. A. M.

[And by the same mail which brought the above letter, we also received another from Anderson, S. C., containing a club of thirteen subscribers. The popularity of the *Farmer* in that State is thus handsomely shown.]

A subscriber in Winchester, Va., (A. F.) who sends us a club annually, writes in sending a new name: "This is the first name on our club for '79, and as not one of the old subscribers is willing to do without the *Farmer*, I can safely promise an increase."

One of the oldest readers of the *Farmer* in a western county of Maryland, writes: "I will most willingly aid your circulation if I can, for I consider the "*Farmer*" now equal to its old and well-earned fame."

A clergyman of Westmoreland Co., Va., (D. M. W.) says: "I enjoy the pleasure of reading your excellent journal, from which I have derived much pleasure—and no doubt much profit—during a long period of about 35 years."

A now venerable farmer of Southern Maryland, (B. K.) says: "The old *Farmer* is more and more attractive to me, and I anxiously await the first of every month to be improved by its pages."

A subscriber at Lenox Castle, N. C., (T. S.) writes: "I look forward with interest to the arrival of each number, and expect to be entertained and profited by its perusal."

Another in Greenbriar Co., W. Va., (A. S.) says: "I highly appreciate the *Farmer*. It has been a great benefit to us, and I wish you health, long life and prosperity."

A young farmer in Halifax Co., N. C., (W. P. J.) writes to have the address of the *Farmer* changed on account of the death of his father, and adds: "He had been a subscriber and reader to your valuable journal ever since 1831, and spoke of it as the best agricultural journal in the United States. He always looked forward to its arrival with pleasure, and had all of the volumes bound for reference. He was a large farmer all his life, and a great admirer of fine stock. He requested me to subscribe for the *Farmer*, as I could not get a better paper."

The following letter speaks for itself, and illustrates at the same time what manner of men the readers of the *Farmer* are, and the friendly feelings and confidence shown by them towards it, and for which we cannot but be appreciative and grateful:

## VIRGINIA.

*Editors American Farmer:*

Enclosed please find the amount due for the *American Farmer*.

The members of our club, all take your paper, and as we desire to get as much advice appertaining to our business as possible, we thought of taking some other papers also, so that we may exchange and get an additional area of matter for our discussions, &c.

All approved this, but it is hard to get any member to volunteer to lead off in giving up the "Old Farmer."

I must do it, *ex necessitate rei*. Were my means better, I should take the *Southern Planter and Farmer*, and hold on to the *Farmer* too. But as I am not able to take both, must send for *Planter and Farmer*, and exchange with some of our members. In desiring you to drop my name as a subscriber, the paper is not losing a friend,—for it shall be my pleasure always to remember to speak of the *Farmer* kindly, and I give it up not that I believe there are any better agricultural papers published in this country, but for reasons indicated above. Dear old *Farmer*, *Vale—Vale—Esto perpetua*. Very respectfully, R. H. T.

## The Press on the American Farmer.

We annex the following notices, from among a great many received, of our exchanges:

"Fully sustains its previous reputation for well-written original matter, and the selections are all of an exceedingly interesting character. Farmers, look to your interest, and subscribe at once. It is growing in favor every day, and is deserving of the patronage it receives."—*Fredrick (Md.) Examiner*.

"The *Farmer* is indeed the farmers' friend and should be in the hands of every cultivator of the soil."—*Charlotte (Va.) Gazette*.

"This reliable journal for the farmer is better than ever. A good farmer can do no better than subscribe for it. A perusal of it will satisfy you of what we say."—*Doer Delawarean*.

"Its monthly discussions of practical farm topics are worth to the intelligent farmer five times the subscription price."—*News, Sulphur Springs, Tenn.*

"An old and staunch agricultural journal. It has stood the winter's winds and the summer's heat for more than thirty years."—*Pedee Herald, Wadesboro, N. C.*

"We welcome none of our exchanges more heartily than we do this excellent monthly. It is always up to the times and full of practical hints and useful information for the farmer. It is an agricultural fair, held monthly, and the season ticket of attendance is cheap, only \$1.50 per year."—*Hagerstown (Md.) Yeoman's Guard*.

"Full of interesting and instructive articles adapted to the season. All in search of a good agricultural journal would do well to apply to Saml. Sands & Son, Baltimore, Md."—*South Branch (W. Va.) Intelligencer*.

"This is, we believe, about the oldest monthly of its class in the country. The secret of its longevity is, no doubt, mainly attributable to the continued freshness of its contents, while it con-

firms the truth of Darwin's postulate of the survival of the fittest."—*Washington (D. C.) Rep.*

"The November number of the *American Farmer* for this month has also been received and we find it filled with its accustomed amount of valuable reading for the agriculturist."—*Upper Marlboro (Md.) Gazette*.

"Old, sound and reliable."—*Nelson Co. (Va.) Examiner*.

"We would urge upon the farmers of our county the importance of making up clubs for this journal. The *American Farmer* is one of the best farm journals in the United States, and every farmer should subscribe for it."—*Gallatin Tennesseean*.

"This valuable publication for November is upon our table, and is full of interesting matter, useful to everybody."—*Hagerstown (Md.) Mail*.

"The *American Farmer*, that earned its reputation when most of our readers were mere children, a well-established paper and full of the most interesting agricultural information. A single number of this magazine is alone worth the price—\$1.50."—*Benacttsville (S. C.) Planter*.

"One of the standard agricultural monthly publications of the land is the *American Farmer*, of Baltimore. The October number is running over with choice and solid reading matter. Send for it at once."—*Atlanta (Ga.) Headlight*.

"This standard and reliable publication this month embraces a wide range of topics, pertaining to the cultivation of the soil and the beautifying of country homes. All of its articles are readable and full of practical and valuable suggestions. The numbers for a year will form, when bound, a valuable addition to a farmer's library."—*Belair (Md.) Egis*.

"Farmers who propose cultivating the soil intelligently should subscribe to the *American Farmer*."—*Mecklenburg (Va.) Democrat*.

"The *American Farmer*, for November, presents a number of valuable contributions from experienced cultivators, besides much useful information upon various topics of interest to the farming community. A favorite in many of our households."—*Charlestown (W. Va.) Spirit of Jefferson*.

"The *American Farmer*, [publishers, Saml. Sands & Son, Baltimore, Md.] has a great variety of excellent articles in all its departments. Indeed, if we may judge from the number of communications from Virginia published in it, this excellent journal is a great favorite with our people."—*Richmond (Va.) Whig*.

"So says the *Whig*, and we take pleasure in adding that the *American Farmer* well deserves to be a great favorite with our people."—*Virginia Patron*.

"Though but a little more than half a century old, we can well remember when the traveler through Montgomery, P. Georges and Anne Arundel counties was greeted, for miles, with scarcely anything but "old sage fields," with, here and there, a small patch of corn, low of stature and delicate in its growth; but now how changed. This result has been brought about by Agricultural Societies and Farmers' Magazines and journals; and none in Maryland have contributed so large a share as the old, tried, and true farmer's friend, *The American Farmer*."—*Chestertown (Md.) Advocate*.

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Our Poultry Department is scantily supplied this month on account of the illness of Mr. Brown, who has been unable to prepare his usual contributions:

### Slaughtering Fowls for Market.

Death by strangulation always presents a bad appearance, because the blood is instantaneously arrested, and, having no outlet to flow off in, it coagulates in the veins, presenting a swollen, dark appearance. This may take place, to some considerable extent, when death is produced in any sudden manner; therefore, the best way to kill fowls for market is to cut off the main arteries by putting a small-blade knife into the mouth or upper portions of the throat and thus bleed them freely, holding them quietly until the struggles cease. Fattening is not all that is to be done to prepare for market. But to have poultry well dressed, preserving the color and freshness which most nearly resemble the living flesh, is a matter of prime importance in determining prices.—*Poultry World.*

### Baltimore Markets—November 30.

**Breadstuffs.**—Flour—Dull and barely steady as to price. Sales are principally for local consumption. We quote: Howard Street Super \$3.02@3.50; do. do. Extra \$3.75@4; do. do. Family \$4.30@5; do. do. trade brands \$5.25@5.50; Western Super \$3.75-3.50; do. Extra \$3.75@4; do. Family \$4.30@5; do. do. trade brands \$5.12@5.50; City Mills Super \$3.75@5; do. do. Extra \$3.75@4.25; do. Rio brands Extra \$5.25@5.50; Spring Wheat Flour \$4.25@5; Minnesota patent, \$5.00@7; Fancy brands \$6.25; Fine \$3@3.50; Rye Flour \$2.50@3.50; Corn Meal, City Mills \$1.15; do. City Mills \$1.00 lb. \$1.05@1.10; Buckwheat Meal \$1.00 lb. \$2.25.

**Wheat.**—Quiet and easy; supply good. We quote: Southern Red, common to fair, 95 cts. @1; do. do. Fultz \$1.01@1.05; do. do. long-berry \$1.07@1.12; Western No. 3 red spot \$1.04½; do. do. no. December delivery \$1.04½ @ \$1.04½; do. do. January do. \$1.06½.

**Corn.**—Prime Southern in good demand, with market steady. Western is quiet and firmer. We quote: Southern white 44@45 cts.; do. yellow 41@44 cts.; Western steamer spot 38½ cts.; do. mixed spot 40½ cts.; do. do. December delivery 44@45 cts.; do. do. January delivery 45½ @45 cts.

**Oats.**—Firmer, with prices advancing. We quote: Western mixed 27@28 cents; do. bright mixed 28@28½ cents; do. white 29@30 cents; Southern, fair to good 26@27 cents; do. prime 28 cents; Pennsylvania 28 cents.

**Rye.**—Quote prime at 54@57 cents, with the market dull.

**Cotton.**—Barely steady, and market for future deliveries lower. We quote: Middling 9 cents; Low Middling 8½@8½; Strict Good Ordinary 8½ cents; Good Ordinary 7½@8 cents.

**Live Stock.**—*Beef Cattle.*—Fairly active, and prices firm. We quote best on sale \$4.37@4.70; generally rated first-class \$3.62@4.25; medium or good fair quality \$3@3.25; ordinary thin steers, oxen and cows \$3-2.75. *Milk Cows.*—Good ones in demand. We quote prices at \$30@0 ½ head, as to quality.

**Pigs.**—Rather dull; prices weak. We quote at 3½ @4 cents, and a few choice 4½ cents ½ lb. net.

**Sheep.**—Receipts equal to demand. We quote Butcher Sheep at 3.24½ cts.; Ewes \$2.50@2.75 ½ head; Wethers \$2.55 cts. ½ lb. gross; Lambs 3½@4½ cts. ½ lb. gross.

**Hay and Straw.**—Dull and barely steady at quotations, which we give: Choice Cecil County Timothy \$13@14; fair to prime Maryland and Pennsylvania Timothy \$10@12; mixed Hay \$8@10; Clover do. \$7@8; Wheat Straw \$6; Oat do. \$7@8; Rye do. \$9@10.

**Poultry.**—Steady under light stock. We quote as follows: Bulk Shoulders, packed, new 4½; do. L. C. Sides, do. do., 5@5½; do. C. R. Sides do. do., 5@5½; Bacon Shoulders, old 3½@4; do. C. R. Sides, new 5½ @5½; do. Hams, sugar-cured, new 7½@8½; do. Shoulders, do. do., 4; Lard, Haddock, turkeys 7; Mutton, Pork, ½ brl. \$8.50.

**Dressed Hogs** are arriving and selling at \$3.50@4 ½ 100 lbs.

**Eggs** in active demand, at 22@23 cts. for fresh; 15@17 cts. for pickled.

**Butter.**—Western tubs, dairy, good to choice fresh, 12@20 cts.; do. factory, good to choice 11@17 cts.; nearby roll 15@17 cts.

**Cheese.**—Active. We quote New York good to choice 8½@9½ cts.; Western do. 7½@9 cts.

**Poultry.**—In large supply. We quote Turkeys at 10@11 cts., and Chickens at 7@9 cts. ½ lb. for undrawn and drawn.

**Produce.**—We quote as follows for the articles named: Apples, N. Y. State ½ brl. \$1.35@1.70; Beans—N. Y. medium ½ bus., \$1.55@1.70; Peas, black-eye, ½ bus., \$1.15@1.18; Peas, Western green, ½ bus., \$1.15@1.20; Chestnuts, ½ bus., \$2.75@3; Potatoes, ½ bus., 55 @60 cents; do. Sweet, ½ brl., \$1.30@1.30; Onions, ½ brl., \$1.35@1.50; Beeswax, ½ lb., 25@26 cents; Ginseng, ½ lb., 70 cents; Seneca Root, ½ lb., 35@38 cents; Virginia Snake, ½ lb., 10@12 cents; Feathers, ½ lb., 35@43 cents; Dried Apples, quarters, 2½@3½ cents; do. sliced, 3@5 cents; Peaches, unpeeled quarters, 2@5½ cents; do. halves, 3½ @4 cents; do. peeled, 4 to 4 cents; Blackberries 5@5½ cents; Whortleberries 9 cents, and Raspberries 23 cents ½ lb.; pitted Cherries 17@19 cents.

**Tobacco.**—Receipts of Maryland large. Market quiet. We quote: Maryland, inferior and frosted, \$1.50@2; sound common \$2.50; 5; good common \$3.50@5; middling \$6@7; good to fine red \$8@10; fancy \$10@15; Virginia, common and good lurs, \$3@5.50; common to medium leaf \$6@8; fair to good leaf \$8@10; selections \$12@16; do. stems, common to fine, \$1.50@2.

**Wool.**—Unwashed, coarse ½ lb., 34@35 cents; do. do. fine ½ lb., 21@22 cents; do. tubwashed, coarse ½ lb., 32@33 cents; do. do. fine ½ lb., 30@33 cents; do. fleece-washed, 33@35 cents.

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From Mr. J. D. Guthrie, of Shelby county, Ky., State Grange Purchasing Agent, and famous grower of Long-Wooled Sheep.

SHELBYVILLE, Ky., May 6th, 1878.

MESSRS. MCGINNIS, TAYLOR & HOLDERBY:

GENTLEMEN—In reply to your request for my opinion, I take pleasure in saying the M'Ginnis Harrow has given universal satisfaction.

It pulverizes deeply, and its smoothing capacity is equal to any Harrow I have ever tried.

It stands unrivaled for destroying the toughest sods with its knife-like teeth, perfectly reducing the sod with two harrowings, presenting a thorough seed-bed for any kind of grain or seed.

Its draft is much lighter than the ordinary Harrow.

It is equal to the Thomas Harrow in lightness of draft, while it possesses decided advantages over the Thomas in DEEP PULVERIZATION, STRENGTH AND DURABILITY.

I have said thus much from observation of its working on the field.

While the Thomas Harrow is better adapted for the shallow covering necessary for very small seeds, for general purposes I think the M'Ginnis Patent is WITHOUT A RIVAL.

Yours truly,

J. D. GUTHRIE.

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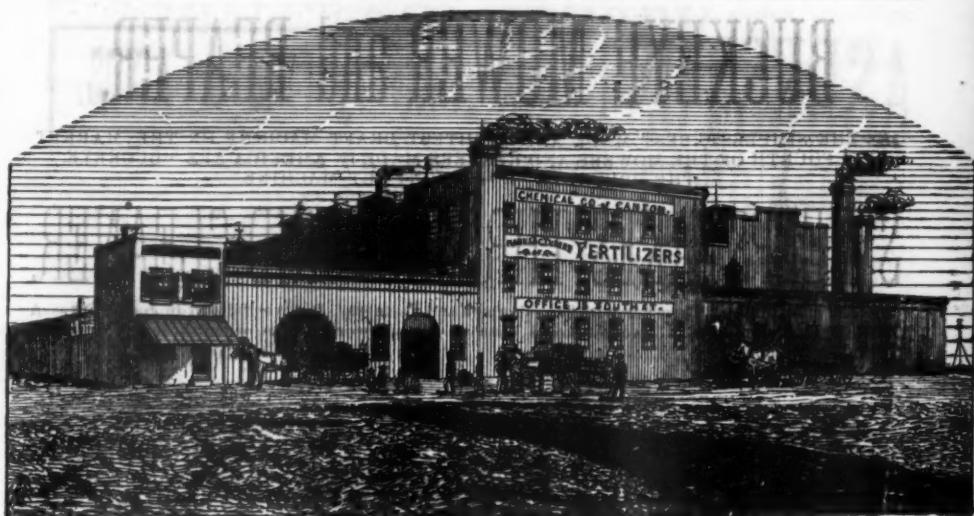
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PURE FINE GROUND BONE, PURE DISSOLVED BONE, SULPHATE OF POTASH,  
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We offer to the trade our High-Grade Fertilizer,

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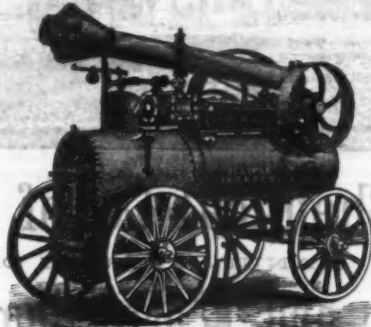
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THE SIMPLEST, BEST MADE AND LIGHTEST DRAFT MACHINE ON THE MARKET  
ONE-FOURTH OF THE MOWERS AND REAPERS MADE IN AMERICA ARE "BUCKEYE."  
THE "BUCKEYE" IS A FRONT-CUT MACHINE.

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The most popular Thresher with Threshermen and Farmers. It never fails to do good work. A Thresherman who buys a Sweepstake is sure of getting work for it, when those having other Threshers cannot.

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Best, Cheapest,  
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Economical Engine  
in the Market.

Awarded First Premium at Cincinnati Exposition, 1874; Maryland State Agricultural Society, 1874 and 1877; Silver Medal at Virginia State Agricultural Society, 1874; North Carolina State Fair, 1875, and others. Thoroughly warranted in every respect, and especially adapted to wants of Threshermen, Sawing Lumber, Farm Work, &c.

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With Patent Cast-Iron Cylinders, warranted not to cut out or scale off, as is the case with GALVANIZED IRON-LINED and PORCELAIN-LINED CYLINDERS. Every Pump provided with Patent Anti-Freezer Attachment.

The Best is the Cheapest.

## The Watt and Ball Plows,

UNEQUALLED for strength, durability, perfect work, light draught, and freedom from choking.

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STEAM ENGINES, STEAM BOILERS.

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Are prepared, with great care, from medical plants, are coated with sugar that they may be taken by the smallest child and upon the most delicate stomach; are intended especially to act upon the Liver—thereby relieving all such diseases as COSTIVENESS, HEADACHE, PARALYSIS, DYSPEPSIA, COLIC, JAUNDICE, and all diseases of a Biliary origin. No better evidence can be offered in favor of these Pills than the very fact that where their ingredients are known to family physicians, they are using them in their private practice. We append the following from one of our most prominent physicians:

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J. M. WISTAR, M. D.

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Messrs. CANBY, GILPIN & Co.—Gents: Please send by express twelve dozen Gilpin's Vegetable Liver Pills. I have the most flattering accounts from all who have used them, and believe the day is not far distant when they will supersede all others.

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We could fill several pages with certificates, &c., from prominent men throughout the country, but prefer to let the Pills in the future, as they have in the past, rest entirely on their own merit—knowing that wherever they are known their use will pass down from generation to generation.

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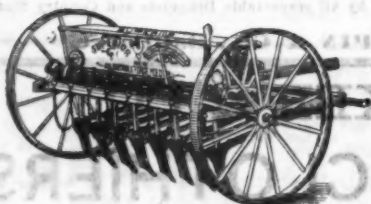
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Having a PERFECT FORCE FEED and a PERFECT FERTILIZER ATTACHMENT. NO BUNCHING OF THE GRAIN. THE STRONGEST AND BEST MADE DRILL IN THE MARKET. Send for Price-List and Circulars.

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Farm Grist Mills, Corn and Cob Crushers, Feed Cutters, Corn Shellers, &c. Also Fertilizers and Seeds.

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A Complete Set of New Patterns, embracing  
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Always on hand, warranted to work true and of the best make.

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For Herd-Book Jersey or Ayrshire Cattle, bred from stock selected in person from best Northern breeders and from "Centennial" Stock Exhibition. Cotswold, Leicester, Shropshire and Southdown Sheep, all bred from best imported stock, and Lambs of each breed for sale in August. Herd-Record Berkshire Swine of best strains, and Essex surpassed by none. Poultry—Choice, well-marked young fowls from all of our varieties will be for sale this fall. Orders for eggs from all classes have closed, except Leghorns. We will continue to fill orders for Leghorn eggs, of either the brown or white variety, at \$1.50 per dozen. More premiums have been awarded to our stock at the Virginia State Fair than that of any other exhibitor in the State. And we would refer all to the whole community in which we live and where our Senior has resided for more than half a century, and particularly to all those whom we have supplied with stock, both North and South,—as we always endeavor to make our stock our best advertisement, and guarantee satisfaction.

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**GOLD** Any worker can make \$19 a day at home. Costly outfit free. Address TRUE & Co., Augusta, Maine.

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**APPLE TREES**—First class, 5 to 8 feet, 10 cents each. \$9 per hundred. Varieties suited to Maryland and the South.

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All kinds of Small Fruit, Plants, Shade and Ornamental trees, at very low rates. Send for Price-List and be astonished, as I intend to sell stock as low as a good article can be grown.

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3 trils BROWN LEGHORNS.....\$6.00 per trio.	4 pairs ROUEN DUCKS.....\$4 a pair.
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2 " LIGHT BRAHMAS.....\$7.00 "	Odd Ducks of either variety.....\$1.25 each.

Nearly all varieties of Poultry at these low rates, and remember nothing cheap but the prices. ALL stock warranted first-class and pure bred. N. B.—No more Sultans, W. C. B. Poland or Dominiques for sale at present. Eggs from all varieties in season.

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Window Sashes, Doors, Blinds, Mouldings, Brackets, Hand Railings, Balusters, Newel Posts, Bracket Shelves, Barge Boards, Window Caps, Door Caps, Pews and Church Work, Blind Hinges, Builders' Hardware, Wood Mantels, Window Frames, Door Frames, Paints, Oil, Putty, Glass, Lumber, Bricks, Lime, Sash Weights, Sash Cord, Porch Columns, Tree Boxes.

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A POSITIVE CURE for Headache, Dyspepsia, Nervousness, Constipation and all bilious diseases may be found in J. M. LAROQUE'S ANTI-BILIOUS BITTERS. 25 cents a paper, \$1.00 a bottle. W. E. THORNTON, Baltimore and Harrison Streets, Baltimore.

J. M. LAROQUE'S ELIXIR OF CALASATA BARK, a pleasant Corral, which strengthens the weak and debilitated, is an excellent preventive of Fever, Fever and Ague, &c., and a great Tonic, especially applicable to those nervous diseases incident to Females. \$1.25 a bottle. W. E. THORNTON, Baltimore and Harrison Streets, Baltimore.

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Made only of Slaughter-house Bones, contains a larger percentage of AMMONIA and BONE PHOSPHATE LIME than any other brand in the market.

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One Thousand Dollars!

For the Detection of any Impurity in our  
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We do not steam or bake our Bones, or otherwise treat them so as to destroy the animal matter, which is rich in ammonia.

The Best Article in the Market

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## DISSOLVED BONE,

MADE OF PURE SLAUGHTER-HOUSE BONES.

It is richer in Soluble Phosphoric Acid and Ammonia than any similar article in the market.

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Muriate Potash, Kainit,  
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This Tubing does not affect the taste of water, like wood and iron, and is the most durable and economical article that can be used for this purpose.



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LEICESTER AND MERINO SHEEP.  
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All bred from the most noted and fashionable strains of Prize-Winning Stock.

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The Old-Established C. O. D. House of Baltimore.

Thanking our customers for the patronage of past years, we take pleasure in presenting them and the general public with our List (for the fall and winter of 1878) of such goods as are in constant use, at the lowest jobbing prices. From our past experience, from our extra facilities, and from the immense and growing magnitude of our sales, we are now enabled to offer in this List the greatest bargains in Boots and Shoes ever offered. Our customers number thousands from all parts of the United States, who have bought and used our goods for years.

We sell Goods direct to the people at jobbing prices, cheaper than the country stores buy them wholesale on the credit system, and save all the profit of the Middle-men.

Buy your Goods from first hands, the same as dealers do, and save what they add to the prices to pay their expenses, and to give them a profit.

We do a Jobbing Trade, selling Goods at the lowest wholesale prices, only we sell direct to the people in clubs or otherwise, instead of to dealers.

## WHY, AND HOW WE SELL SO CHEAP.

We have pursued the C. O. D. plan for years; we have built up a good paying trade; it is popular with our customers. We know that by selling Goods on this plan we give our customers better bargains than on the old plan of credit. By giving better bargains we increase our trade.

## EXCLUSIVELY FOR CASH.

We have buyers in New York, Philadelphia and Boston, who watch the market, wait for bargains, watch the bankrupt sales, the trade sales, and in the ways and places known to experienced buyers, and choose Goods for cash at the lowest figures possible. Our customers are not asked to pay for goods before they get them. The fact of being established so long, and selling such large amounts of Goods, gives us all the advantages that can accrue from such a plan; and we can now afford to sell much cheaper than we did at first.

The C. O. D. plan gives our customers all the benefits to be derived from CO-OPERATION.

With the large sales that we make, we lower our prices of Goods to our patrons, and are simply taking advantage of available and legitimate avenues of trade to increase our business.

We are the exclusive Agents for

## EDWIN C. BURTS NEW YORK FINE SHOES FOR LADIES, MISSES AND GENTLEMEN.

### GENTLEMEN'S DEPARTMENT.

Gents' Buff Pegged Shoes.....	\$1 50	Gents' French Calf Hand Stitched Boots, Extra Quality.....	5 00
Gents' Buff Pegged Prince Alberts.....	1 75	Gents' Buff Stitched Boots, Extra Quality.....	3 75
Gents' Calf Sewed Prince Alberts.....	2 25	Gents' Kip.....	2 75
Gents' French Calf English Ties, Sewed.....	2 75	Gents' Kip, Extra Quality.....	3 50
Gents' Lasting Gaiters.....	1 50	Gents' Extra Quality Water Proof Boots.....	3 75
Gents' Buff Pegged Congress.....	1 50	Gents' Heavy Plough Shoes.....	1 65@ 1 75
Gents' Buff Sewed Congress.....	2 00	Gents' Extra Quality Plough Shoes.....	1 85
Gents' Buff Plain Congress.....	1 60	Gents' Heavy Pegged Balmorals.....	1 40
Gents' Calf Boxed Toe Sewed Congress Gaiters.....	2 00	Gents' Heavy Pegged Double Sole Balmorals.....	1 55
Gents' Fine Calf Sewed Congress Gaiters.....	2 25	Gents' Kip Boots.....	2 25
Gents' Calf Stitched Box Toe Gaiters.....	2 75	Gents' Extra Quality Kip Boots.....	4 00
Gents' French Hand Stitched Congress.....	2 75	Gents' Long Legged Kip Boots.....	2 75
Gents' Calf Congress Gaiters, Pegged.....	1 75	Gents' Long Legged Kip Boots, Extra Quality.....	4 00
Gents' Buff Pegged Boots.....	2 75	Russia Leather Water Proof Boots.....	3 50
Gents' Calf Pegged Boots, Extra Quality.....	3 50	Water Proof Hunting Boots.....	4 00
Gents' Calf Hand Sewed Boots.....	4 25	Gents' Split Leather Boots.....	2 50
Gents' Prime Stitched Calf Boots.....	4 50	Gents' Extra Heavy Split Leather Boot.....	5 00
Gents' Calf Pegged Boots, Extra Quality.....	3 50		

### LADIES' DEPARTMENT.

Ladies' Lasting Congress Gaiters.....	\$1 00	Ladies' French Leather Button, Extra Quality.....	2 25
Ladies' Lasting Balmoral Gaiters.....	1 00	Ladies' French Kid Button Boots.....	2 75
Ladies' Lasting Kid Foxed Gaiters.....	1 25	Ladies' Kid Lace Balmorals.....	2 00
Ladies' Lasting Brush Kid Foxed Gaiters.....	1 50	Ladies' Morocco Balmorals, high cut.....	1 50
Ladies' Lasting Kid Foxed, Extra Quality.....	2 00	Ladies' Morocco Balmorals, high cut, Extra Qual.....	1 75
Ladies' Lasting Slippers.....	60	Ladies' Morocco Balmorals, all styles.....	1 25
Ladies' Lasting Buskin's Slippers.....	75	Ladies' Calf Pegged High Cut Balmorals.....	1 15
Ladies' Kid Heeled Slippers.....	75	Ladies' Calf Pegged High Cut, Extra Quality.....	1 37
Ladies' Kid Croquet Slippers.....	1 15	Ladies' Calf Sewed High Cut Balmorals.....	1 75
Ladies' Kid Newport Ties, Extra Quality.....	1 50	Ladies' Calf Sewed Extra Quality Balmorals.....	2 00
Ladies' Lasting Button Boots, (plain).....	1 50	Ladies' Goat Leather Balmorals, Heavy.....	1 35
Ladies' Lasting Button Boots, Extra Fine.....	2 00	Ladies' Buff Pegged Shoes.....	1 00
Ladies' Lasting Kid Foxed Button.....	1 50	Ladies' Buff Pegged, Extra Quality.....	1 25
Ladies' Lasting Kid Foxed Button, Extra Fine.....	2 25	Ladies' Heavy Split Balmorals.....	90
Ladies' French Leather Button Boots.....	1 75		

### MISSES' AND BOYS' DEPARTMENT.

Misses' Lasting Balmorals, Plain.....	75@1 00	Misses' Kid Foxed Button.....	1 50@2 00
Misses' Lasting Balmorals, Extra Quality.....	1 15@1 25	Misses' Calf Pegged Balmorals.....	1 00@1 25
Misses' Lasting Kid Foxed Balmorals.....	1 25@1 50	Misses' Calf Sewed Balmorals.....	1 25@1 50
Misses' Fine Morocco Balmorals.....	1 25@1 50	Ladies' and Misses' White Kid Boots, Slippers and Faneys	
Misses' Fine Kid Balmorals.....	1 37@1 50	Shoes of all Styles on hand.....	
Boy's Calf Pegged and Sewed Balmorals.....	1 25@1 50	Boy's Heavy Kip Boots.....	1 50@1 75
Boy's Calf Sewed Congress Gaiters.....	1 50@1 75	Boy's Kip Boots, Extra Quality.....	2 00@2 25
Boy's Calf Pegged Congress.....	1 25@1 40	Boy's Fine Pegged Boots.....	1 75@2 00

We can now also send by mail single pairs of shoes or packages to any address, at 18 cents per pair to any part of the United States. All orders should be accompanied with the money, Post-Office Money Order, or in Registered Letters, or C. O. D. by Express.

We guarantee to give satisfaction, and anything purchased of our house which may not suit after purchase, we will exchange or refund the money within six months after purchase. Send Stamp for Printed Catalogue.

The Customer's Confidence is Never Abused.

Weinberger's C. O. D. Shoe House,

81 N. EUTAW STREET, BALTIMORE.

*Baltimore*







# Chesapeake Chemical Works.

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## **OIL VITRIOL.**

**MANUFACTURERS AND MANIPULATORS OF PHOSPHATES  
ON ORDERS AND FORMULAS FURNISHED BY  
OUR FRIENDS.**

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Having completed extensive improvements and additions to our Works, giving us increased facilities, we are now prepared to execute orders with greater promptness, and deliver goods in much better mechanical condition than heretofore.

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**We offer to the Trade the following Goods, all of which are absolutely Free from Adulteration :**

### **DISSOLVED GROUND BONE,**

Containing 3 per cent. of Ammonia.

### **DISSOLVED SOUTH AMERICAN BONE ASH.**

Containing 40 to 44 per cent. Soluble Bone Phosphate.

### **DISSOLVED SOUTH CAROLINA PHOSPHATE.**

Containing 27 to 30 per cent. Soluble Bone Phosphate.

To meet the demand for a high-grade Fertilizer, we are offering **SLINGLUFF'S NATIVE SUPER-PHOSPHATE**—prepared entirely from Animal Bone—highly ammoniated.

Also, **SLINGLUFF'S No. 1 AMMONIATED SUPER-PHOSPHATE.** This we can confidently recommend as one of the best fertilizers sold in the market at a low price.

## ***SLINGLUFF & CO.***

**OFFICE, 155 W. Fayette Street.**

**WORKS, Foot of Leadenhall St.**

## **BALTIMORE.**

**R. W. L. RASIN & CO.**

MANUFACTURERS OF

# **Chemical Fertilizers**

—) FOR (—



**Cotton, Tobacco, Corn Oats, Wheat, &c.**

**Works, SOUTH BALTIMORE.**

Where they have introduced the MOST COMPLETE MACHINERY for compounding Concentrated Fertilizers, that their great experience has enabled them to so successfully introduce to the Planters of the Middle and Southern States.

## **SOLUBLE SEA ISLAND GUANO**

So well-known and of UNDOUBTED EXCELLENCE.

## **EMPIRE GUANO**

A High-Grade Fertilizer of KNOWN MERIT.

## **Dissolved Bone Phosphate**

Prepared from GROUND ANIMAL BONES.

## **ACIDULATED SOUTH CAROLINA and NAVASSA PHOSPHATES**

### **AMMONIATED ALKALINE PHOSPHATE,**

A complete manure, endorsed by the Patrons, who have used it with great satisfaction for the last 5 years, and is on sale by Grange Agents at Baltimore, Richmond, Norfolk, Petersburg and Alexandria.

### **RAW and STEAMED BONES, POTASH SALTS.**

And all Fertilizing Materials in Store and for Sale.



**SPECIAL COMPOUNDS PREPARED ON ORDERS.**

**R. W. L. RASIN & CO.**

S. W. Cor. SOUTH and WATER STREETS, BALTIMORE.



